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THE  
GENERA OF FUNGI

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## PREFACE.

The present book is an outgrowth of a translation of the keys in the original eight volumes of Saccardo's "Sylloge Fungorum." This translation was mimeographed and bound for the use of classes in mycology. It immediately proved so convenient and usable that the preparation of a complete guide to the fungi was begun the same year. Many things have occurred during the past two years to delay the completion of the guide until this time. In its present form, the book is based upon Saccardo's great work, though in certain groups other authors have been followed, and in some cases, the discomycetes and lichens, the treatment amounts almost to a revision. The arrangement of the orders and families is different in a large measure, and in the distribution of the lichens is original. No attempt has been made to revise the genera, except where the treatment had lagged behind current practice, as is particularly true of the lichens. In some cases, genera have been included in others, but this is done only for the sake of the beginner, when the descriptions reveal no differences, and is by no means intended as a revision.

Questions of nomenclature have necessarily been left largely to one side, but no hesitation has been felt in making certain corrections. These have dealt mostly with mistaken or neglected transliteration, and with faulty composition. A considerable number of sesquipedalian words have been shortened, and the greater number of hybrid names have been corrected. These corrections have been made in such a way as to retain as much of the original name as possible. Corrections are indicated by the sign † with the original form in parenthesis below. New genera are designated by an asterisk, and are listed with their types on a later page.

The genera described in volumes 9-18 of the "Sylloge" have been included in the proper family keys. Genera placed under "incertae sedis" are excluded as a rule, since it is impossible to locate them definitely. A few genera occur more than once when they show the characters of two families, or when superficial and developmental features indicate different positions. An endeavor has been made to make the keys as consistent as possible, and as simple as is profitable. The mycologist must have a fair equipment of technical terms, as well as a Latin vocabulary, and the sooner these are acquired the better. In many cases, definiteness will seem to be lost by the use of such terms as "typically," "usually," etc., but the beginner must quickly learn that the line between families is rarely clear-cut, but often on the contrary most devious. The tyro must constantly be warned that some species belong as naturally in one family as in another, and must consequently be sought in more than one place. The color of a spore, the position of a perithegium, or the texture of a cup does not always

conform with a definite term, and the beginner must be governed accordingly.

While the writer is particularly indebted to Saccardo's "Sylloge Fungorum," he is also indebted to Thaxter's "Monograph of the Laboulbeniaceae," and his "Preliminary Diagnoses of New Species of Laboulbeniaceae," II-VI, for the material for the key to this group. The treatment of the Pezizales is largely that of Rehm's "Discomyceten," modified by the inclusion of the lichens. From Engler and Prantl's "Pflanzenfamilien," material has been drawn in the monographs of the bacteria by Migula, of phycomycetes and other groups by Schröter and Lindau, and especially of the lichens by Zahlbruckner. The writer is also under heavy obligation to Dr. Edith Clements, for the preparation of the Glossary, and for much other work of preparation and of publication. His thanks are also due to Professor Raymond J. Pool for assistance in the original mimeograph copies.

FREDERIC EDWARD CLEMENTS.

The University of Minnesota,  
June 1, 1909.

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# Key to Orders and Families

I. Filaments one-celled, rarely septate, typically aquatic or endobiotic; propagation by fission or by conidia, the latter usually in sporangia; sex-cells typically present, uniting to form resting-spores	<b>Phycomycetes</b>	<b>1</b>
II. Filaments septate, typically saprophytic or epibiotic; conidia borne on conidiophores; sex-cells usually absent		
1. Spores in a hymenium composed of asci or club-shaped basidia		
a. Spores in asci	<b>Ascomycetes</b>	<b>2</b>
b. Spores on more or less club-shaped basidia	<b>Basidiomycetes</b>	<b>5</b>
2. Conidia on conidiophores of various form, not in asci or on true basidia	<b>Fungi Imperfecti</b>	<b>6</b>

## Phycomycetes

I. True mycelium lacking or rudimentary		
1. Threads simple, globose to filamentous, often motile; propagating by fission or by conidia also		
a. Cells single or in colonies, never forming plasmodium-like masses	<b>Bacterales</b>	<b>7</b>
(1) Cells filamentous, not spirally twisted		
(a) Filaments motile, sheathless	<b>Beggiatoaceae</b>	<b>7</b>
(b) Filaments non-motile, sheathed	<b>Chlamydobacteriaceae</b>	<b>7</b>
(2) Cells cylindric to globose, spirally twisted when filamentous		
(a) Cells more or less spirally twisted	<b>Spirillaceae</b>	<b>7</b>
(b) Cells not spirally twisted or curved		
x. Cells oblong to cylindric	<b>Bacteriaceae</b>	<b>8</b>
y. Cells globose or cuboid	<b>Coccaceae</b>	<b>8</b>
b. Cells secreting a gelatinous matrix and forming pseudoplasmodia, passing into cysts or spore-masses which are often stalked	<b>Myxobactrales</b>	<b>8</b>
2. Threads absent or slightly developed; propagation by sporangia which produce zoogonids; sex-cells rare	<b>Chytridiaceae</b>	<b>9</b>
II. Mycelium present, typically well-developed and branched; propagation by zoogonids or by non-motile conidia borne in sporangia or on conidiophores; sex-cells usually present		
1. Aerial fungi propagating by conidia		
a. Conidia typically in globose to cylindric sporangia; mostly saprophytes; zygosporous	<b>Mucoraceae</b>	<b>12</b>

b. Conidia single or in chains on conidiophores		
(1) Typically parasitic on insects; zygosporous	Entomophthoraceae	14
(2) Typically parasitic on leaves and stems; oosporous	Peronosporaceae	17
2. Typically aquatic fungi propagating by zoogonids		
a. Mycelium mostly well-developed		
(1) Antheridial tube touching or penetrating oogone	Saprolegniaceae	15
(2) Antherids producing antherozoids	Monoblepharidaceae	18
b. Mycelium more or less scanty, developing wholly or chiefly into sporangia and sex-organs	Ancylistaceae	16

### Ascomycetes

I. Asci completely or partly enclosed in a pericarp		
1. Asci in a perithecium		
a. Perithecia one to many on a receptacle; sex-organs present; typically on insects	Laboulbeniales	18
b. Perithecia not on a receptacle; sex organs very rare; rarely on insects	Sphaeriales	21
(1) Mycelium or subicle typically present; ostiole and paraphyses usually absent		
(a) Subicle white; perithecia usually with appendages; asci one to few, more or less ovoid	Erysibaceae	21
(b) Subicle dark or black; appendages mostly lacking; asci usually numerous, more or less cylindric		
x. Perithecia more or less globose	Perisporiaceae	22
y. Perithecia clavate to cylindric, often branched	Capnodiaceae	25
(2) Subicle usually absent; ostiole and paraphyses typically present		
(a) Perithecia fleshy or waxy, bright colored	Hypocreaceae	42
(b) Perithecia hard, membranous to carbonous, typically brown to black		
x. Perithecia distinct, not reduced to cavities or locules		
(x) Perithecia normally globose, single, clustered or in a stroma		
m. Mycelium not forming a thallus with algae	Sphaeriaceae	25
n. Mycelium forming a thallus	Verrucariaceae	38
(y) Perithecia flattened, dimidiate and radiate	Microthyriaceae	51
(z) Perithecia with a broad and compressed or a funnellform ostiole		
m. Ostiole broad and compressed, cleft; perithecia mostly carbonous	Lophiostomataceae	53
n. Ostiole elongate, then expanded and		

	funnel form; perithecia mostly coriaceous	<b>Coryneliaceae</b>	54
y.	Perithecia reduced to locules in a stroma		
(x)	Thallus absent		
m.	Stromata mostly carbonous or membranous, not attached by a stipe-like point	<b>Dothideaceae</b>	48
n.	Stromata subcarnose, attached by a stipe-like point	<b>Coccoideaceae</b>	50
(y)	Thallus present	<b>Mycoporaceae</b>	50
2.	Asci in a hysterothecium, i. e., a perithecium with a cleft-like ostiole, typically oblong to linear, rarely vertical	<b>Hysteriales</b>	54
a.	Hysterothecium imperfect, dimidiate-scutate, but the ostiole a cleft	<b>Hemihysteriaceae</b>	54
b.	Hysterothecium more or less elongate and rimose, or rounded and stellately cleft		
(1)	Hysterothecium elongate, rimose, rarely vertical		
(a)	Thallus absent	<b>Hysteriaceae</b>	55
(b)	Thallus present	<b>Graphidaceae</b>	58
(2)	Hysterothecium round to linear, ostiole more or less stellate or lobed; thallus present or absent		
3.	Asci in an apothecium	<b>Arthoniae</b>	58
a.	Apothecia closed at first, then open, disk-shaped to cup-shaped, rarely elongate	<b>Pezizales</b>	61
(1)	Thallus lacking		
(a)	Apothecia sunken, then erumpent, usually opening by lobes, rarely by a cleft		
x.	Apothecia opening by stellate or irregular lobes or by a cleft		
(x)	Apothecia dark, brown or black		
m.	Apothecia mostly carbonous or leathery; hypothecium thin	<b>Phacidaceae</b>	61
n.	Apothecia mostly membranous or horny; hypothecium thick	<b>Tryblidiaceae</b>	65
(y)	Apothecia white or bright colored, typically waxy	<b>Stictidaceae</b>	62
y.	Apothecia usually opening circularly, mostly leathery or horny, brown or black	<b>Dermateaceae</b>	65
(b)	Apothecia typically superficial and opening circularly, usually waxy or fleshy but often carbonous, gelatinous or leathery		
x.	Asci disappearing early; spores and paraphyses forming a mazaedium	<b>Caliciaceae</b>	70
y.	Asci persistent; mazaedium lacking		

(x) Apothecia not branched-stipitate at the tips of branches		
m. Apothecia gelatinous	Bulgariaceae	66
n. Apothecia not gelatinous		
(m) Apothecia usually dark or black, carbonous to leathery, rarely waxy	Patellariaceae	68
(n) Apothecia usually bright colored, waxy to fleshy		
r. Apothecia typically waxy, on plant parts		
(r) Exciple brownish, parenchymatic all over or at the base; mostly sessile	Mollisiaceae	84
(s) Exciple concolorous, prosenchymatic; mostly stalked	Helotiaceae	86
s. Apothecia typically fleshy, usually terrestrial, often fimicole		
(r) Apothecia usually terrestrial, medium to large; asci mostly cylindric, not exserted	Pezizaceae	88
(s) Apothecia usually fimicole; asci broad, exserted from disk at maturity	Ascobolaceae	92
(y) Apothecia branched-stipitate at the tips of branches	Cordieritaceae	92
(2) Thallus present		
(a) Asci disappearing early; disk with a mazaedium	Caliciaceae	70
(b) Asci persistent; mazaedium absent		
x. Thallus cottony, cobwebby or spongy; algae yellow-green	Chrysotrichaceae	72
y. Thallus more or less distinctly gelatinous; algae blue-green	Collemataceae	72
z. Thallus firm, layered, neither gelatinous nor cottony		
(x) Thallus of two sorts: one horizontal, the other erect, i. e., a podetium	Cladoniaceae	78
(y) Thallus of one sort only, horizontal or erect		
m. Spores typically 2-celled, with a thickened cross-wall, usually traversed by a narrow canal	Physciaceae	83
n. Spores without thickened cross-wall and intersecting canal		
(m) Apothecia sunken, or grown together with the thallus on the whole underside	Peltophoraceae	75
(n) Apothecia typically superficial when mature, not attached broadly		

r. Apothecia with proper exciple	<b>Lecideaceae</b>	76
s. Apothecia typically with thalline exciple	<b>Parmeliaceae</b>	78
b. Apothecia open from the first, stalked, saddle-shaped, pileate to club-shaped, terrestrial as a rule	<b>Helvellaceae</b>	90
4. Asci in a closed globose body or ascoma, containing cavities or veins	<b>Tuberales</b>	94
a. Ascomata epigean		
(1) Ascomata fleshy with locules at the margin, forming swellings on branches of living trees	<b>Cyttariaceae</b>	94
(2) Ascomata minute, waxy to subcarbonous, crowded with locules containing a single ascus each	<b>Phymatosphaeriaceae</b>	95
(3) Ascomata fragile, asci evanescent, then powdery within; epizoid	<b>Onygenaceae</b>	96
b. Ascomata hypogean		
(1) Ascomata woody, crustose or carbonous, powdery within	<b>Elaphomycetaceae</b>	96
(2) Ascomata fleshy or waxy, not powdery but veined or lacunose within	<b>Tuberaceae</b>	96
II. Asci exposed, apothecium lacking		
1. Spores free in the ascus	<b>Gymnascales</b>	93
a. Asci parallel and crowded, usually deforming living plant parts	<b>Exascaceae</b>	93
b. Asci solitary or grouped irregularly, saprophytic or when parasitic scarcely deforming the host	<b>Gymnascaceae</b>	93
c. Asci abnormal, rare; mycelium poorly developed, propagating by budding	<b>Saccharomycetaceae</b>	94
2. Spore wall united with ascus wall, or asci disappearing at maturity	<b>Uredinales</b>	98
a. Spores and ascus united; aecidia and uredinia often present	<b>Uredinaceae</b>	98
b. Asci disappearing early, leaving a firm or powdery spore-mass	<b>Ustilaginaceae</b>	101
<b>Basidiomycetes</b>		
I. Hymenium variously modified, exposed at maturity	<b>Agaricales</b>	102
1. Basidia septate crosswise or lengthwise, or furcate; usually gelatinous	<b>Tremellaceae</b>	103
2. Basidia not septate; pileus fleshy, waxy, leathery or woody		
a. Hymenium more or less uniform		
(1) Pileus funnel-form, dimidiate or resupinate	<b>Thelephoraceae</b>	105
(2) Pileus club-shaped, coralloid or filiform	<b>Clavariaceae</b>	105
b. Hymenium modified into teeth, pores or gills		
(1) Hymenium of teeth or granules	<b>Hydnaceae</b>	107
(2) Hymenium of pores or tubes	<b>Polyporaceae</b>	108

(3) Hymenium of gills or gill-like veins	Agaricaceae	110
II. Definite hymenium lacking; spore-mass gelatinous or powdery, typically enclosed in a peridium, or elevated at maturity	Lycoperdales	115
1. Gleba more or less gelatinous, enclosed at first in a volva, then raised on the receptacle	Phallaceae	115
2. Gleba firm or powdery, not gelatinous, enclosed in a peridium		
a. Peridium epigean		
(1) Gleba typically powdery or cellular, enclosed in a more or less globose peridium which opens irregularly or by a definite mouth	Lycoperdaceae	116
(2) Gleba in seed-like sporiangioles which are borne in a more or less cup-shaped peridium	Nidulariaceae	120
b. Peridium hypogean, closed	Hymenogastraceae	119

### Fungi Imperfecti

I. Conidia present		
1. Conidia in globose, cup-shaped or hysteroioid pycnidia	Phomatales	121
a. Pycnidia fleshy or waxy, bright colored	Zythiaceae	128
b. Pycnidia typically membranous to carbonous, dark, brown or black		
(1) Pycnidia more or less globose, rarely cylindric	Phomataceae	121
(2) Pycnidia dimidiate, shield-shaped	Leptostromataceae	130
(3) Pycnidia disciform, cup-shaped or hysteroioid	Excipulaceae	133
2. Conidia not in pycnidia		
a. Hyphae short or obsolete, borne on a matrix or stratum	Melanconiales	135
b. Hyphae not on a matrix, typically well-developed, but sometimes short or even lacking	Moniliales	138
(1) Hyphae in more or less loose cottony masses		
(a) Hyphae and conidia clear or bright colored	Moniliaceae	138
(b) Hyphae and conidia both typically dark or one or the other always dark	Dematiaceae	146
(2) Hyphae compactly united to form a globose to cylindric body which is often stalked		
(a) Hyphal body cylindric to capitate, stalked, i. e., a synnema	Stilbaceae	154
(b) Hyphal body more or less globose, sessile, i. e., a sporodochium	Tuberculariaceae	158
II. Conidia lacking	Sterile Mycelia	164



# Key to the Genera

## Class 1. SCHIZOMYCETES

Typically one-celled fungi, dividing by fission in 1, 2 or 3 planes, sometimes forming true filaments, but then motile or sheathed, and without true branches; resting cells often developed; sexual reproduction lacking.

### Order 1. BACTERIALES

Globose, rod-like or filamentous, single or in colonies, sometimes grouped into a loose mass (zoogloea), but never forming pseudoplasmodia or sporangium-like masses.

#### Family 1. BEGGIATOACEAE

MIGULA 40

Filaments simple, free, motile, continuous or septate, sheathless, usually filled with shining or yellowish sulphur granules.

A single genus

*Beggiatoa* 8: 935

#### Family 2. CHLAMYDOBACTERIACEAE

MIGULA 35

Filaments simple or false-branched, typically attached, non-motile, septate, with a more or less conspicuous sheath; propagation by ciliate, creeping or non-motile conidia.

##### I. Cells without sulphur granules

###### 1. Filaments simple

a. Fission always in one plane

*Nocardia* 8: 927

b. Fission in 3 planes during conidia formation

(1) Filaments marine, sheath very thin

*Phragmidiothrix* 8: 935

(2) Filaments fresh-water, sheath distinct

*Crenothrix* 8: 925

2. Filaments false-branched

*Cladothrix* 8: 927

##### II. Cells with sulphur granules

*Thiothrix* 8: 934

#### Family 3. SPIRILLACEAE

MIGULA 30

One-celled, more or less spirally twisted, rod-like or short-filamentous, usually motile by means of one to many flagella.

##### I. Cells stiff or rigid

- |                                   |                            |
|-----------------------------------|----------------------------|
| I. Flagella lacking               | <i>Spirosoma</i> M. 31     |
| II. Flagella present              |                            |
| a. Flagellum 1, rarely 2-3, polar | <i>Microspira</i> M. 31    |
| b. Flagella clustered, polar      | <i>Spirillum</i> 8: 1006   |
| III. Cells flexible               | <i>Spirochaete</i> 8: 1006 |

#### Family 4. BACTERIACEAE

MIGULA 20

One-celled, cells oblong to cylindric, straight or at least never spirally curved, flagella often present.

- |                        |                          |
|------------------------|--------------------------|
| I. Flagella lacking    | <i>Bacterium</i> 8: 1020 |
| II. Flagella present   |                          |
| 1. Flagella peripheral | <i>Bacillus</i> 8: 943   |
| 2. Flagella polar      | <i>Pseudomonas</i> M. 29 |

#### Family 5. COCCACEAE

MIGULA 15

One-celled, cells globose, usually flattened when grouped in rows or masses, flagella usually absent.

- |  |                              |
|--|------------------------------|
| I. Flagella lacking                          |                              |
| 1. Fission in one plane, cells in rows       | <i>Streptococcus</i> 8: 1054 |
| 2. Fission in two planes, cells in plates    | <i>Micrococcus</i> 8: 1076   |
| 3. Fission in three planes, cells in bundles | <i>Sarcina</i> 8: 1044       |
| II. Flagella present                         |                              |
| 1. Fission in two planes                     | <i>Planococcus</i> M. 19     |
| 2. Fission in three planes                   | <i>Planosarcina</i> M. 20    |

### Order 2. MYXOBACTRALES

Cells rod-like, motile, fission in one plane; cells secreting a gelatinous base and forming pseudoplasmodia, then passing into cysts, or spore-masses which are often stalked (cystophore).

#### Family 6. MYXOBACTERIACEAE

11: 460, T. 389

Characters of the order.

- |   |                             |
|---|-----------------------------|
| I. Cells always rod-like, distinct cysts present                    |                             |
| 1. Cysts free, usually on a cystophore                              | <i>Chondromyces</i> 14: 842 |
| 2. Cysts one or more in a gelatinous matrix                         | <i>Myxobacter</i> 14: 844   |
|   | ( <i>Polyangium</i> 7: 47)  |
| II. Cells finally forming rows of globose spores, no definite cysts |                             |
|   | <i>Myxococcus</i> 14: 843   |

### Class 2. CHLOROPHYCEAE

Typically one-celled or filamentous plants, for the most part chlorophyllous but

each order containing at least one fungous family; propagation by fission and zoogonids; sexual reproduction present in most.

### Order 3. PROTOCOCCALES

Typically one-celled algae, usually dividing by fission and producing zoogonids; sexual reproduction often lacking; one fungous family.

#### Family 7. CHYTRIDIACEAE

7: 286, SCHROETER 65

Mycelium lacking or in the form of delicate protoplasmic threads, rarely of hyphae, one-celled; sporangiophore lacking or but slightly developed; sporangia producing zoogonids, thin-walled and ripening quickly, or thick-walled and resting for a time (resting sporangia); sexual reproduction present in a few forms, the sex organs scarcely distinguishable.

#### Key to the Subfamilies

- I. Resting sporangium asexual, rarely formed by the union of two zoogonids
  1. Mycelium completely lacking
    - a. Sporangia separate, one formed from each fruit-mass  
**Olpidiae**
    - b. Sporangia in sori, formed by division of fruit-mass  
**Synchytriae**
  2. Mycelium present
    - a. Mycelium of delicate transient strands
      - (1) Mycelium limited to one terminal sporangium  
**Rhizidiae**
      - (2) Mycelium extended, sporangia intercalary and terminal  
**Cladochytriae**
    - b. Mycelium consisting of permanent hyphae  
**Hyphochytriae**
- II. Sexual resting spores formed by union of two sporangia and passing of contents of one into the other  
**Oochytriae**
- III. Sexual spores formed by conjugation  
**Zygochytriae**

#### Subfamily Olpidiae

SCHROETER 67

Mycelium lacking; fruit-mass endobiotic, globose, elliptic, rarely subclavate, undivided, finally forming a simple zoosporangium or resting sporangium, in which zoospores are formed after a period of rest.

- I. Fruit-body amoeboid before maturity  
**Reessia** 7: 304, S. 67
- II. Fruit-body without movement
  1. Sporangia free in the host-cell
    - a. Membrane delicate, dissolving to free zoospores  
**Sphaerita** 7: 314, S. 67
    - b. Membrane firm, with a definite opening
      - (1) Sporangia globose or elliptic
        - (a) Sporangia with 1, rarely 2, openings

x. Zoospores 1-ciliate; resting sporangium smooth

*Olpidium* 7: 310, S. 67

y. Zoospores 2-ciliate; resting sporangium spiny or warted

*Olpidopsis* 7: 299, S. 69

(b) Zoosporangia with many openings

*Pleotrachelus* 7: 315, S. 69

(2) Sporangia elongate or clavate

*Ectrogella* 7: 315, S. 70

2. Wall of sporangium fused with wall of host-cell

*Pleolpidium* S. 70

### Subfamily Synchytriae

SCHROETER 71

Mycelium lacking; fruit-body endobiotic, when mature dividing simultaneously to form zoosporangia grouped in rows or in a sorus; resting sporangia arising directly from the fruit-body or by the division of it.

I. Zoosporangia arising through direct division of entire plasm of fruit-body, not surrounded by a common membrane

1. Sporangia filling host-cell completely, wall fused with that of host-cell

*Rozella* 7: 300, S. 71

2. Sporangia free, aggregated

*Woronina* 7: 301, S. 71

II. Zoosporangia arising through division of the full-grown fruit-body, surrounded by the common membrane of the mother cell

1. Sporangia formed directly from the full-grown fruit-body

*Synchytrium* 7: 288, S. 72

2. Sporangia formed from the division of a thin-walled mother-cell which escapes from the fruit body

*Pycnochytrium* S. 73

### Subfamily Rhizidiae

SCHROETER 75

Fruit-body endophytic, epiphytic, or living free between the nutrient media, at base with a slender (in epiphytic forms sometimes scarcely perceptible) often branched mycelium, distinct for each fruit-body and imbedded in the matrix; zoosporangia globose or oblong, simple, often with a sterile swollen cell at base; zoospores globose, 1-ciliate; resting sporangia formed asexually, usually like the zoosporangia.

I. Zoosporangia breaking out with an irregular or tube-like mouth, like the resting sporangia, which arise at the same place; mycelium delicate

1. Sporangia without basal cell, arising directly from mycelium

a. Sporangia endophytic

*Entophlyctis* 14: 443, S. 75

b. Sporangia epiphytic or free

(1) Sporangia epiphytic, seated thickly on host-cell

*Rhizophidium* 7: 298, S. 76

(2) Sporangia free, mycelium only penetrating nutrient medium

(a) Zoospores escaping singly

*Rhizophlyctis* 14: 445, S. 77

(b) Zoospores escaping as a ball

*Nowakowskia* 7: 313, S. 77

2. Sporangia with stalk-like or swollen basal cell

a. Sporangia with a stalk-like cell

(1) Epiphytic; stalk separated by wall from sporangium

- (a) Sporangium straight, rounded above  
*Podochytrium* S. 77
- (b) Sporangium curved, pointed above  
*Harpochytrium* 11: 249, S. 77
- (2) Saprophytic; stalk not separated from sporangium  
*Obelidium* 7: 299, S. 77
- b. Sporangia with swollen basal cell
  - (1) Sporangium and basal cell endophytic  
*Diplophlyctis* S. 78
  - (2) Sporangium epiphytic or free
    - (a) Sporangium epiphytic
      - x. Zoospores escaping singly  
*Phlyctochytrium* S. 78
      - y. Zoospores escaping in a ball  
*Rhizidiomyces* 7: 316, S. 79
    - (b) Sporangia saprophytic, free  
*Rhizidium* 7: 296, S. 79
- II. Zoosporangia opening by a lid, epiphytic; resting sporangia endophytic, mycelium tubular or saccate  
*Chytridium* 7: 304, S. 80

#### Subfamily Cladochytriae

SCHROETER 80

Mycelium diffuse, repeatedly branched, saprophytic, intercellular or intracellular, forming many sporangia, delicate, disappearing by the maturity of the spores; sporangia intercalary or terminal, zoospores 1-ciliate; resting sporangia produced asexually.

- I. Resting sporangia alone present  
*Physoderma* 7: 317, S. 81
- II. Zoosporangia alone present
  - 1. Endophytic, intracellular  
*Cladochytrium* 7: 295, S. 81
  - 2. Free, in algal slime
    - a. Sporangia opening by a hole  
*Amoebochytrium* 7: 315, S. 82
    - b. Sporangia opening by a lid  
*Nowakowskiella* 17: 514, S. 82

#### Subfamily Harpochytriae

SCHROETER 83

Mycelium strongly developed, cylindric, persistent; sporangia alone known, formed asexually.

- I. Mycelium and sporangia in the host-cell  
*Catenaria* 9: 360, S. 83
- II. Sporangia in part at least free
  - 1. Parasitic
    - a. Mycelium endophytic  
*Harpochytrium* 11: 249, S. 84
    - b. Mycelium endozoic  
*Polyrrhina* 7: 314, S. 84
  - 2. Saprophytic  
*Tetrachytrium* 7: 295, S. 84

#### Subfamily Oochytriae

SCHROETER 84

Mycelium lacking or variously developed; resting sporangium formed by the union of two young fruit-bodies, in which the plasm of one passes into the other which develops as an oogone; zoosporangia present, spherical to elongate.

- I. Mycelium entirely lacking  
*Diplophysa* 7: 302, S. 85
- II. Mycelium present

1. Mycelium producing a single fruit-body    **Polyphagus** 7: 302, S. 85
2. Mycelium producing several fruit-bodies    **Urophlyctis** 7: 303, S. 86

### Subfamily Zygochytriae

SCHROETER 87

Mycelium one-celled, upright, branched, producing zoospores and zygospores; zoosporangia single on ends of the branches, opening by a lid, zoospores one-ciliate; zygospores produced by the fusion of the end-cells of conjugating tubes, growing into a filament upon germination; intermediate between Chytridiaceae and Mucoraceae.

A single genus

**Zygochytrium** 7: 294, S. 87

## Order 4. SPIROGYRALES

Typically one-celled or simple filamentous algae, without zoospores; sexual reproduction by the conjugation of similar gametes; two fungous families.

### Family 8. MUCORACEAE

SCHROETER 119, 7: 182, 9: 335, 11: 239, 14: 432, 16: 383, 17: 494

Saprophytes, rarely parasites, with a well-developed branching mycelium in which cross-walls are absent; propagation by spores (conidia) arising within sporangia, the latter apparently reduced to chains of conidia in one family; reproduction by the union of the end-cells or gametes of conjugating tubes.

### Key to the Subfamilies

- I. Sporangia always present, conidia sometimes present
  1. Columella present; zygospore naked or with a few appendages
    - a. Wall of the sporangium homogeneous, not cuticularized, diffuent  
**Mucorae**
    - b. Wall cuticularized and persistent above, thin and diffuent below  
**Pilobolae**
  2. Columella absent; zygospore enveloped in a dense covering  
**Mortierellae**
- II. Sporangia rarely present, conidia always present
  1. Conidia solitary; zygospore arising directly from the gametes
    - a. Sporangia present  
**Choanophorae**
    - b. Sporangia lacking  
**Chaetocladiæ**
  2. Conidia in chains; zygospore arising from outgrowths of gametes  
**Syncephalidæ**

### Subfamily Mucorae

7: 184, S. 123

Mycelium similar throughout or consisting of aerial and nutritive parts; sporangia alike or of two sorts, primary and accessory, the former with columella, the latter mostly without one; zygospore naked or with separate appendages arising from the suspensors.

## I. Sporangia similar

## 1. Sporangiphore simple or branched, but not repeatedly dichotomous

## a. Suspensors without appendages at maturity

## (1) Aerial mycelium lacking

## (a) Sporangia single, terminal

*Mucor* 7: 190, S. 124

## (b) Sporangia clustered, lateral

## x. Sporangia globose

*Circinella* 7: 215, S. 125

## y. Sporangia long pear-shaped

*Pirella* 7: 216, S. 125

## (2) Aerial mycelium present

## (a) Aerial mycelium stoloniferous

*Rhizopus* 7: 212, S. 125

## (b) Aerial mycelium with many short thorn-like branches

*Spinellus* 7: 205, S. 125

## b. Suspensors with thorny appendages at maturity

## (1) Appendages spreading

*Phycomyces* 7: 204, S. 126

## (2) Appendages loosely enclosing the zygospore

*Absidia* 7: 214, S. 126

## 2. Sporangiphore repeatedly dichotomous

*Sporodinia* 7: 206, S. 127

## II. Sporangia of two sorts, primary and secondary

## 1. Primary sporangia with, secondary without columella

*Thamnidium* 7: 211, S. 127

## 2. Both kinds of sporangia with columella

*Dicranophora* 11: 240, S. 128**Subfamily Pilobolae**

7: 184, S. 123

Mycelium similar throughout; sporangia alike, with columella, sporangial wall cuticularized and persistent above; zygospores naked.

## I. Sporangiphore equal, sporangium not thrown off

*Pilaira* 7: 188, S. 129

## II. Sporangiphore swollen above, sporangium thrown off

*Pilobolus* 7: 184, S. 129**Subfamily Mortierellae**

7: 184, S. 130

Sporangia similar, terminal, without columella; conidia single, spherical on short lateral branches of the aerial mycelium; zygospore enclosed in a dense mass of hyphae arising from the suspensors.

## I. Sporangiphores erect, branches attenuate toward tip

*Mortierella* 7: 220, S. 130

## II. Sporangiphores creeping, branches equal

*Herpocladiella* 7: 225, S. 130**Subfamily Choanophorae**

9: 339, S. 131

Mycelium parasitic on plant parts; sporangia and conidia both present; conidio-



phores simple or branched, bearing one-celled conidia; sporangiophores simple, sporangia with a small columella.

A single genus

**Choanophora** 9: 339, S. 131

### Subfamily Chaetocladiæ

7: 220, S. 131

Mycelium parasitic on species of Mucor; propagation by conidia, sporangia lacking, conidia arising on short side branches; zygosporangia arising directly from the fused gametes.

A single genus

**Chaetocladium** 7: 220, S. 131

### Subfamily Syncephalidæ

7: 225, S. 132

Conidia in chains on short basidia borne on the end of the sporophores; zygosporangia arising as an outgrowth from the tips of the suspensors after conjugation.

I. Sporophores not swollen at tip

**Piptocephalis** 7: 225, S. 132

II. Sporophores swollen into a head at tip

1. Sporophore simple

**Syncephalis** 7: 227, S. 132

2. Sporophore branched

**Syncephalastrum** 7: 232, S. 134

## Family 9. ENTOMOPHTHORACEAE

SCHROETER 134, 7: 280, 9: 349, 14: 437, 16: 388, 17: 510

Mycelium usually well-developed, tubular or filamentous, mostly parasitic or endozoic, rarely saprophytic, at first one-celled, then septate; propagation by one-celled conidia terminal on one-celled clavate conidiophores; zygosporangia globose.

I. Mycelium endozoic (in insects)

1. Conidia always present

a. Conidiophore simple, zygosporangia unknown, azygosporangia present

(1) Cystidia and holdfasts lacking; azygosporangia lateral

**Empusa** 7: 281, S. 138

(2) Cystidia and holdfasts present; azygosporangia terminal

**Lamia** S. 139

b. Conidiophore repeatedly branched, zygosporangia and azygosporangia present

**Entomophthora** 7: 282, S. 139

2. Azygosporangia alone present

**Tarichium** 7: 284, S. 140

II. Mycelium endophytic or saprophytic

1. Mycelium little developed, intracellular

**Completozia** 7: 286, S. 140

2. Mycelium well-developed, not intracellular

a. Parasitic on fungi

**Conidiobolus** 7: 285, S. 141

b. Saprophytic

**Basidiobolus** 7: 285, S. 141

## Order 5. VAUCHERIALES

Unicellular, multinucleate, saccate or filamentous algae and fungi; propagation by zoospores or conidia; sexual reproduction in the three fungous families by unlike gametes, produced in antherids and oogones.

**Family 10. SAPROLEGNIACEAE**

SCHROETER 93, 7: 264, 9: 345, 11: 244, 14: 450, 16: 395, 17: 519

Mycelium strongly developed, broadly filamentous, more or less branched; propagation by zoosporangia, producing ciliate, rarely non-motile, zoospores; sexual reproduction by antherids and oogones, their contents fusing by means of a connecting tube.

**Key to the Subfamilies**

- I. Vegetative mycelium broad, tubular, aquatic; zoosporangia cylindric, of the same width as the mycelium
  - 1. Filaments uniform, not constricted **Saprolegniae**
  - 2. Filaments constricted regularly **Leptomitae**
- II. Vegetative mycelium thin, mostly saprophytic on plant tissues; zoosporangia several times broader than the filaments **Pythiae**

**Subfamily Saprolegniae**

SCHROETER 96

Nutritive mycelium sunken in the substratum, finely branched, water mycelium tubular, repeatedly branched, cylindric; zoosporangia narrowly cylindric; oogones mostly terminal, globose, 1- to many-spored, antheridia clavate, the tube penetrating the oogone.

- I. Zoospores escaping before germination
  - 1. Zoosporangia cylindric-clavate, zoospores several-rowed
    - a. Zoospores escaping together through a terminal pore
      - (1) Zoospores scattering upon escape
        - (a) Zoosporangia ovate **Pythiopsis S. 97**
        - (b) Zoosporangia cylindric **Saprolegnia 7: 268, S. 97**
      - (2) Zoospores remaining massed about the pore **Achlya 7: 274, S. 99**
    - b. Zoospores not escaping through a common opening
      - (1) Each zoospore escaping singly through its own lateral pore **Dictyuchus 7: 273, S. 99**
      - (2) Zoospores freed by the falling apart of the whole sporangium **Thraustotheca S. 100**
  - 2. Zoosporangia linear, zoospores 1-rowed
    - a. Zoospores scattering upon escape **Leptolegnia S. 100**
    - b. Zoospores remaining in a ball at the pore **Aphanomyces 7: 276, S. 100**
- II. Zoospores germinating in the sporangium **Aplanes S. 101**

**Subfamily Leptomitae**

SCHROETER 101

Filaments thin, branched, divided by regular constrictions; zoosporangia cylindric, pear-shaped or elliptic; oogones 1-spored.

- I. Branches similar to the main stem

1. Zoospores escaping singly from the pore  
**Leptomitrus 7: 265, S. 101**
  2. Zoospores remaining in a hollow ball about the pore before swimming  
**Apodachlya S. 102**
- II. Branches different from the main stem
1. Branches whorled  
**Naegeliella S. 163**
  2. Branches repeatedly umbellate-ramose  
**Araeospora 14: 454**
  3. Branches springing from the swollen tip of the main stem  
**Rhipidium 7: 268, S. 103**

### Subfamily Pythiae

SCHROETER 104

Vegetative mycelium very narrow, uniform, much-branched; sporangiophores not distinct from mycelium; zoosporangium filamentous, cylindric, ellipsoid or globose, contents escaping in a globose vesicle in which the zoospores arise, zoospores 2-ciliate; oogones globose, terminal, rarely intercalary, 1-spored.

- I. Zoosporangia filamentous  
**Nematosporangium S. 104**
- II. Zoosporangia globose or lemon-shaped  
**Pythium 7: 270, S. 104**

### Family II. ANCYLISTACEAE

SCHROETER 89, 7: 278, 9: 348, 14: 450, 16: 395, 17: 516

Mycelium mostly poorly developed and scarcely distinct from the fruit-body, the latter tubular, when mature divided into vegetative cells, sporangia or oogones and antherids; entire contents of antherid passing into oogone, oospore lying free; sporangia always producing zoospores.

### Key to the Subfamilies

- I. Filament or fruit-body producing wholly sporangia or sex cells, mycelium entirely lacking  
**Lagenidiæ**
- II. Filament producing vegetative cells also, the latter germinating to form threads  
**Ancylistae**

### Subfamily Lagenidiæ

Fruit-body filamentous, tubular, simple or branched, dividing into cells which develop into sporangia or sex cells; antherids on the same or on different fruit bodies; sporangia and oospores always giving rise to zoospores.

- I. In fresh-water algae, rarely in animals
  1. Filament simple
    - a. Zoospores escaping singly from the sporangium  
**Achlyogeton 7: 277, S. 89**
    - b. Sporangial plasim poured out into a vesicle in which the zoospores are formed  
**Myzocytiun 7: 279, S. 90**
  2. Filament with short side-branches  
**Lagenidium 7: 278, S. 90**
- II. In the root-hairs of plants  
**Rhizomyxa 7: 278, S. 91**

### Subfamily Ancylistae

Fruit-body tubular, mycelium-like, unbranched or with few short side-branches, when mature dividing into a number of chain-like cells, which develop into vegetative

cells, sporangia or sex cells; sporangia producing zoospores; vegetative cells producing a long tube, which penetrates new host-cells; oospores globose or elliptic.

I. Sporangia lacking, vegetative and sex cells alone formed

**Ancylistes 7: 280, S. 92**

II. Sporangia also present

**Reticularia 9: 348, S. 92**

### Family 12. PERONOSPORACEAE

SCHROETER 110, 7: 233, 9: 340, 11: 242, 14: 457, 16: 396, 17: 519

Mycelium abundant, filamentous, much branched, one-celled, endophytic; propagation by conidia borne on the ends of conidiophores, conidia producing zoospores or a germinating tube; sexual reproduction by means of endophytic antherids and oogones, borne on the ends of lateral branches; oospores single, globose, producing zoospores or a germinating tube.

#### Key to the Subfamilies

I. Conidia in chains, conidiophores club-shaped

**Albuginae**

II. Conidia single, conidiophores branched

**Peronosporae**

#### Subfamily Albuginae

Mycelium intercellular, haustoria globose; conidiophores densely grouped into a conidial layer beneath the epidermis; conidia globose, ellipsoid or subcylindric, in chains on the ends of the conidiophores, usually producing zoospores, rarely a germinating tube; oospores globose, producing zoospores.

A single genus

**Albugo 7: 233, S. 110**

#### Subfamily Peronosporae

Mycelium intercellular, rarely intracellular, haustoria of various form; conidiophores thread-like, above the epidermis, branched, without cross-walls; conidia single on the tips of the branchlets, producing zoospores or a germinating tube; oospores globose, with a well-developed outer wall, germinating by means of a tube.

I. Conidiophores slender, with long and slender branches

1. Conidiophore growing after the formation of the first conidia, producing new joints

**Phytophthora 7: 237, S. 113**

2. Conidiophore not growing and making new extensions

a. Conidia papillate at the tip

(1) Conidia on stalks arising from irregular disks

**Bremia 7: 243, S. 116**

(2) Conidia on stalks arising directly from the unchanged ends of the conidiophores

**Plasmopara 7: 239**

b. Conidia not papillate at the tip

**Peronospora 7: 244, S. 117**

II. Conidiophores stout, swollen at the tip, or with short thick branches

1. Conidiophore simple up to the enlarged tip, which bears the conidia on slender stalks

**Basidiophora S. 114**

2. Conidiophore with short thick branches bearing the conidia on flask-like stalks

**Sclerospora 7: 238, S. 114**

**Order 6. CONFERVALES**

Typically multicellular filamentous algae, propagating by zoospores, and reproducing by the union of isogametes, or by heterogametes borne in antherids and oogones; one fungous family.

**Family 13. MONOBLEPHARIDACEAE**

SCHROETER 106, 7: 277, 14: 452, 16: 394

Mycelium filamentous, one-celled or septate, producing zoospores and sex cells; zoospores 1-ciliate arising in terminal sporangia; antherids cylindric producing ciliate antherozoids; oogones globose, terminal, opening by a pore, 1-spored.

**I. Zoospores 1-ciliate**

1. Mycelial threads equal throughout **Monoblepharis 7: 277, S. 107**

2. Mycelial threads constricted, necklace-like  
**Gonapodya 14: 452, S. 107**

**II. Zoospores two or more ciliate**

1. Zoospores 2-ciliate **Diblepharis 16: 395**

2. Zoospores many-ciliate **Myrioblepharis 14: 455**

**Class 4. ASCOMYCETES**

Fungi usually destitute of a conspicuous mycelium, reproducing by means of a spore-fruit containing asci (perithecium or apothecium), the spore-fruit occasionally reduced to a group of naked asci.

**Order 7. LABOULBENIALES**

THAXTER 197, LINDAU 491

**Family 14. LABOULBENIACEAE**

8: 909, 9: 1130, 11: 446, 14: 725, 16: 674, 17: 915

Receptacle consisting of two to many cells in a row, or parenchyma-like, regularly producing from the cells one or more appendages bearing antherids as a rule; antherozoids normally endogenous, borne within flask-like, simple or compound antherids, rarely produced like conidia, i. e., naked or exogenous; perithecia one to many, stalked or sessile, terminal or lateral on the receptacle, resulting from fertilization by means of a trichogyne; asci seriate, mostly 4-spored, spores usually 2-celled.

**I. Antherozoids endogenous, i. e., in closed antherids****1. Antheridial cells forming a compound antherid****a. Dioecious**

(1) Perithecia and appendages in pairs to the right and left  
**Dimorphomyces T. 264, L. 497**

(2) Perithecia and appendages in a row  
**Dimeromyces T. 267, L. 497**

**b. Monoecious****(1) Antherids arising on an appendage****(a) Antherids lateral****x. On a subbasal cell of the appendage**

**Cantharomyces T. 271, L. 497**

- y. On short opposite branchlets of the appendage  
**Stichomyces** T. 4: 37
- (b) Antherids terminal
  - x. Antherid with a short spine at the tip  
**Haplomyces** T. 269, L. 497
  - y. Antherid without a spine but with a neck-like canal cell
    - (x) Ascogenic cells at least 36 **Polyascomyces** T. 2: 414
    - (y) Ascogenic cells few
      - m. Stalk of antherid a single cell
      - (m) Antheridial cells obliquely in vertical rows
        - r. Subbasal cell of receptacle with a sterile appendage  
**Eumonoecomyces** T. 4: 21
        - s. Subbasal cell of receptacle without sterile appendage  
**Eucantharomyces** T. 273, L. 497
      - (n) Antherid parenchyma-like, many-celled
        - r. Antheridial cells with three marginal cells  
**Euhaplomyces** T. 4: 25
        - s. Antherial cells without marginal cells  
**Camptomyces** T. 274, L. 498
    - (o) Antherid of several superposed cells bearing single simple antherids directly
      - r. Simple antherids two **Acallomyces** T. 5: 23
      - s. Simple antherids several  
**Acompsomyces** T. 4: 37
  - n. Stalk of two cells placed side by side  
**Monoecomyces** T. 2: 412, 4: 23
- (2) Antherids arising on the receptacle
  - (a) Perithecia free
    - x. Receptacle of a single row of several to many superposed cells  
**Enarthromyces** T. 276, L. 498
    - y. Receptacle of one or two superposed cells followed by two or three oblique or transverse rows
      - (x) Receptacle with one basal cell
        - m. Basal cell followed by two tiers of cells  
**Limnaeomyces** T. 2: 428
        - n. Basal cell followed by three symmetrical series  
**Dichomyces** T. 282, L. 499
      - (y) Receptacle with two superposed basal cells  
**Peyritschiella** T. 278, L. 499
  - (b) Perithecia grown together with distal portion of receptacle
    - x. Base of receptacle of two superposed cells  
**Chitonomyces** T. 285, L. 499
    - y. Base of three superposed cells **Hydraeomyces** T. 293, L. 500
- 2. Antheridial cells distinct, discharging independently
  - a. Dioecious
    - (1) Perithecium borne by the basal or subbasal cell of receptacle
      - (a) Perithecium on the single basal cell, spores continuous  
**Amorphomyces** T. 295, L. 501

- (b) Perithecium lateral on the subbasal cell, spores obliquely 1-septate  
**Dioecomyces T. 4: 33**
- (2) Two-celled normal receptacle producing secondary receptacles on which the perithecia are borne  
**Herpomyces T. 5: 11**
- b. Monoecious
  - (1) Antherids in definite series on the appendages
    - (a) Arising directly from cells of the appendages
      - x. Appendage one
        - (x) Antherids in 4 vertical series  
**Helminthophana T. 297, L. 501**
        - (y) Antherids in a single vertical series  
**Stigmatomyces T. 298, L. 501**
      - y. Appendages numerous, antherids in 3 vertical series  
**Idiomyces T. 302, L. 501**
    - (b) Borne on branches of the appendages
      - x. Appendage one
        - (x) Appendage with sterile terminal branchlets, antherids in short series near its base  
**Rhadinomyces T. 305, L. 501**
        - (y) Appendage with fertile terminal branchlets bearing antherids laterally  
**Eucorethromyces T. 2: 433**
      - y. Appendages forming a tuft, antherids on lateral branchlets  
**Corethromyces T. 303, L. 501**
  - (2) Antherids not in definite series on the appendages
    - (a) Receptacle 2-celled
      - x. Basal cell with rhizoids
        - (x) A single receptacle from each rhizoid base  
**Rhizomyces T. 307, L. 502**
        - (y) Several receptacles from a common rhizoid base  
**Moschomyces T. 368, L. 504**
      - y. Basal cell not from a rhizoid
        - (x) Appendage single
          - m. Receptacle of 2 superposed cells
            - (m) Basal cell spheric, penetrating by a long filament  
**Ceraomyces T. 3: 410**
            - (n) Basal cell elongate  
**Sphaleromyces T. 365, L. 504**
          - n. Receptacle of a series of superposed cells  
**Ectinomyces T. 5: 26**
        - (y) Appendages several to many
          - m. Appendages and perithecium in a whorl  
**Compsomyces T. 366, L. 504**
          - n. Appendages in a row  
**Clematomyces T. 2: 439**
      - (b) Receptacle more than 2-celled
        - x. Receptacle of seriate, regularly superposed cells
          - (x) Plant bilaterally symmetrical  
**Diplomyces T. 357, L. 503**
          - (y) Plant asymmetrical
            - m. Receptacle of two contiguous and united rows
              - (m) A single basal cell  
**Rhachomyces T. 358, L. 504**



(n) Basal and subbasal cell present

*Distichomyces* T. 6: 308

n. Receptacle of a single row *Chaetomyces* T. 364, L. 504

y. Receptacle more or less parenchyma-like, at most only part of the cells superposed in series

(x) Appendages all on one side *Laboulbenia* T. 308, L. 502

(y) Appendages on two sides *Rickia* 16: 689

(z) Appendages completely surrounding the perithecium

*Teratomyces* T. 354 L. 502

II. Antherozoids exogenous, i. e., produced terminally or laterally on the appendages as naked cells

1. Receptacle large, very many-celled, parenchyma-like

a. Perithecium with six wall cells in each row

(1) Base of trichogyne persistent as a one-celled appendage

*Caenomyces* T. 4: 44

(2) Base of trichogyne not persistent as an appendage

*Zodiomyces* T. 371, L. 504

b. Perithecium with 9-10 wall cells in each row

*Euzodiomyces* T. 2: 449

2. Receptacle of a series of superposed cells

a. Appendage single

*Ceratomyces* T. 372, L. 505

b. Appendages several

*Coreomyces* T. 5: 56

The genus *Misgomyces* T. 2: 443 has not been included in the key owing to the fact that its antherids are unknown; it is very closely related, apparently, to *Laboulbenia*.

## Order 8. SPHAERIALES

Mycelium sometimes superficial and abundant, often forming a thallus with algae, but usually scanty and imbedded in the matrix, the threads branched and septate; propagation by means of conidia borne on branches of the mycelium, or by means of pycnidia; reproduction resulting in a globose, flask-shaped or flattened perithecium, with a round mouth or ostiole except in the simpler forms, in which appendages are also often found; asci usually 8-spored and with paraphyses; spores hyaline, yellowish or brown, one to many-celled.

### Family 15. ERYSIACEAE

I: 1, 9: 364, II: 253, I4: 404, I7: 526

Mycelium white, cobwebby, superficial, penetrating the epiderm by means of haustoria; propagation by chains of conidia cut off from upright simple branches; perithecium without mouth, membranous, regularly with simple or modified appendages, often imbedded in the mycelium; ascus one to several, globose to ovoid, 2-8-spored, without paraphyses; spores usually 1-celled, hyaline.

#### *Hyalosporae*

Spores 1-celled, hyaline

I. Perithecium with one ascus

1. Appendages simple

*Sphaerotheca* 1: 3

2. Appendages dichotomously branched

*Podosphaera* 1: 2

## II. Perithecium with several asci

## 1. Appendages present

## a. Appendages simple, thread-like

**Erysibe** 1: 15

## b. Appendages branched or otherwise modified

## (1) Appendages dichotomously branched

**Microsphaera** 1: 10

## (2) Appendages modified but not branched

## (a) Appendages stiff and bristle-like

## x. Appendages numerous, not swollen at base

**Pleochaete** 1: 9

## y. Appendages few, swollen at base

**Phyllactinia** 1: 5

## (b) Appendages coiled at tip

**Uncinula** 1: 6

## 2. Appendages absent; perithecium surrounded by the mycelium

**Erysibella** 1: 23**Dictyosporae**

Spores usually hyaline, muriform

## A single genus

**Saccardia** 1: 24**Family 16. PERISPORIACEAE**

1: 24, 9: 371, 11: 253, 14: 462, 16: 398, 17: 524

Mycelium superficial, dark, filamentous, sometimes lacking, rarely forming a firm stroma; conidia or pycnidia rarely present; perithecium without a mouth, or opening irregularly, usually globose, membranous or coriaceous, rarely carbonous, appendages usually lacking; asci mostly numerous, clustered, more or less cylindric, mostly 8-spored, paraphyses regularly lacking; spores various.

**Hyalosporae**

Spores 1-celled, hyaline or yellowish

## I. Perithecia bright-colored, yellow or reddish, rarely white

## 1. Asci 8-spored

## a. Perithecia with setae, or hairs

## (1) With long rigid setae

**Chaetotheca** 11: 254

## (2) With many hairs, immersed in a dense subicle

**Cryptothecium** 14: 465

## b. Perithecia glabrous

## (1) Spores with an unequal samariform appendage

**Samarospora** 11: 254

## (2) Spores not appendaged

## (a) Spores verrucose

**Anixiopsis** 14: 464

## (b) Spores smooth

## x. Conidiophores branched

**Allescheria** 14: 464

## y. Conidiophores simple, swollen at tip

**Eurotium** 1: 25

(Kickxella 9: 372)

**Pisomyxa** 1: 29

## 2. Asci many-spored

## II. Perithecia dark or black, spores hyaline

## 1. Asci 2-8-spored

- a. Ascus single Cystotheca 16: 407
- b. Asci several or many
  - (1) Perithecia numerous in setose stroma-like cups Lasiobotrys 1: 29
  - (2) Perithecia not in cups
    - (a) Perithecia globose Meliolopsis 1: 68
    - (b) Perithecia applanate Asterula 1: 47
- 2. Asci many-spored
  - a. Asci many Apiosporium 1: 30
  - b. Ascus single Monascus 9: 373
- III. Perithecia brown, then black, spores yellow Anixia 1: 34

**Phaeosporae**

Spores 1-celled, dark

- I. Asci capitate on tips of branched hyphae Cephalotheca 1: 36
- II. Asci sessile or on simple stalks
  - 1. Perithecia with appendages
    - a. Spores globose, conglobate
      - (1) Appendages closely spiral, convolute Pleurascus 16: 1123
      - (2) Appendages flexuose-tortuose Arachnomycetes 17: 532
    - b. Spores ellipsoid
      - (1) Appendages several times branched Ascotricha 1: 37
      - (2) Appendages circinate at apex Magnusia 1: 38
  - 2. Perithecia without appendages
    - a. Perithecia hairy or setose Chaetomidium 1: 39
    - b. Perithecia glabrous
      - (1) Perithecia innate upon a radiate subicle Asteronia 1: 47
      - (2) Perithecia not on a radiate subicle
        - (a) Spores at first conglobate Laaseomyces 16: 405
        - (b) Spores free from the first
          - x. Growing on lichen thalli Orbicula 1: 38
          - y. Growing on roots Thielavia 1: 39

**Hyalodidymae**

Spores 2-celled, (1-septate), hyaline

- I. Asci 8-spored
  - 1. Cells of spore separating easily Neorehmia 17: 536
  - 2. Cells of spore not separating
    - a. Perithecia on a radiate subicle Asterella 1: 42
    - b. Perithecia on a uniform subicle Dimerosporium 1: 51
- II. Asci many-spored Pampolysporium 16: 411

**Phaeodidymae**

Spores 1-septate, dark when mature, rarely yellowish

- I. Perithecia on a subicle
  - 1. Subicle radiate: perithecia lenticular Asterina 1: 39
  - 2. Subicle uniform, dematium-like; perithecia globose

- a. Perithecia without basal setae
    - (1) Asci several or many Dimerium 1: 51, 17: 537
    - (2) Ascus one, rarely two Balladyna 16: 411
  - b. Perithecia with basal setae Kusanobotrys 17: 881
- II. Perithecia not seated on a subicle
- 1. Perithecia gelatinous when wet, honey-yellow Englerula 17: 529
  - 2. Perithecia membranous or carbonous, usually dark
    - a. Spores apiculate-appendaged, very large Zopfia 1: 54
    - b. Spores not appendaged, small or medium
      - (1) Spores smooth
        - (a) Spores elongate-oblong, very large Richonia 9: 379
        - (b) Spores subtrapeziform, small Argynna 14: 470
        - (c) Spores ellipitic, medium Parodiella 1: 717, 9: 409
      - (2) Spores spiny or roughened
        - (a) Perithecium irregularly dehiscent; asci not long-stalked Marchaliella 11: 257
        - (b) Perithecia regularly areolate-dehiscent; asci long-stalked Testudina 9: 378

#### Hyalophragmiae

Spores with 2 or more cross walls, hyaline

- I. Perithecia on a radiate subicle Asteridium 1: 49
- II. Perithecia on a uniform subicle
  - 1. Subicle effuse, dematium-like; perithecium closed Zukalia 9: 431
  - 2. Subicle fibrous, subcrustose; perithecium perforate Perisporiopsis 17: 544

#### Phaeophragmiae

Spores 2-several-septate, dark

- I. Perithecia on a radiate subicle Meliola 1: 60  
(Limacinia 14: 474)
- II. Subicle uniform or absent
  - 1. Spores separating at the joints
    - a. Paraphyses lacking Perisporium 1: 55
    - b. Paraphyses present Schenckiella 11: 268
  - 2. Spores not separating Perisporina 17: 545

#### Hyalodictyae

Spores muriform, hyaline

- I. Perithecia on a subicle, closed Zukaliopsis 17: 554

#### Phaeodictyae

Spores muriform, dark

- I. Perithecia globose
  - 1. Spores with an appendage at each end Ceratocarpia 14: 474
  - 2. Spores without appendages

- a. Subicle radiate Pleomeliola 1: 70, 17: 554
  - b. Subicle lacking Cleistothece 11: 270
- II. Perithecia appanate Cookella 1: 71

### Scolecosporae

Spores filiform, septate or continuous, hyaline or subhyaline

- I. Perithecium opening by a small pore Saccardomyces 17: 530
- II. Perithecium without a pore
  - 1. Subicle radiate, paraphyses present Ophiomeliola 16: 416
  - 2. Subicle uniform, paraphyses absent Hyaloderma 9: 437

### Family 17. CAPNODIACEAE

1: 73, 9: 438, 11: 270, 14: 476, 17: 555

Perithecia vertically elongate, clavate or cylindric, obtuse or acute, simple or branched, usually laciniate-dehiscent at the apex, on a thick black mycelium, which is rarely absent.

- I. Subicle crustose
  - 1. Spores 1-celled, globose Capnodiella 1: 74
  - 2. Spores 3-4-septate, dark Capnodaria 1: 74
  - 3. Spores muriform, dark Capnodium 1: 73, 80
- II. Subicle very thick, spongy Scorias 1: 83
- III. Subicle sparse or lacking
  - 1. Spores 1-celled, hyaline Capnodiopsis 17: 555
  - 2. Spores 2-celled, hyaline; perithecium gelatinous Seuratia 17: 558

### Family 18. SPHAERIACEAE

1: 88, 2: 1, 9: 4, 11: 271, 14: 478, 16: 417, 17: 560

Mycelium scanty and immersed, or often producing a stroma, rarely a subicle; perithecia typically globoid, often drawn out into a beak, membranous, coriaceous, or carbonous, brown or black, dehiscing by a round pore or ostiole, single, cespitose or composite in a stroma; in the latter case each perithecium is distinct, not merely a locule in the stroma; asci usually numerous, elongate, usually paraphysate; spores various.

### Allantosporae

Spores 1-celled, obtuse, curved-oblong, hyaline or olivascent

- I. Perithecia sparse or cespitose
  - 1. Ostiole central, very short
    - a. Asci 8-spored
      - (1) Perithecia covered
        - (a) Perithecia minute, glabrous Massalongiella 1: 89
        - (b) Perithecia largish, strigose-pilose Enchnoa 1: 89
      - (2) Perithecia subsuperficial
        - (a) Perithecia globose, never collapsing Bizzozera A: 24, 9: 445

- (b) Perithecia collapsing, becoming cup-shaped
  - x. Perithecia gregarious **Coelosphaeria** 1: 91
  - y. Perithecia caespitose **Nitschkea** 11: 272
- b. Asci many-spored **Fracchiacea** 1: 93
- 2. Ostiole central, papillate **Neoarcangelia** 16: 419
- 3. Ostiole lateral, conic **Pleurostoma** 1: 95
- II. Perithecia composite, typically in a stroma
  - 1. True stroma lacking; perithecia heaped together between bark and wood
    - a. Asci 8-spored; ostiole short or long **Calosphaeria** 1: 95 (16: 419, 421)
    - b. Asci many-spored; ostiole very short **Coronophora** 1: 103
  - 2. True stroma present; perithecia immersed in bark or wood
    - a. Stroma formed by the changed matrix
      - (1) Stroma valsous, i. e., perithecia in a circle
        - (a) Asci 4-8-spored
        - x. Perithecia usually 4, never more than 6, in each stroma **Quaternaria** 1: 106
        - y. Perithecia many, 8-30, in most stromata at least
          - (x) Perithecia circinate or monostichous, ostiole entire; asci sessile. **Valsa** 1: 108
          - (y) Perithecia monostichous or polystichous, ostiole not entire; asci stipitate **Eutypella** 1: 145, 17: 569
        - (b) Asci many-spored **Valsella** 1: 158
      - (2) Stroma eutypeous, i. e., broadly and indefinitely effuse
        - (a) Asci 8-spored
          - x. Stroma conspicuous, cortical or woody **Eutypa** 1: 162, 17: 569
          - y. Stroma more or less obsolete
            - (x) Stroma woody; ostiole largish; spores subfuscous **Endoxyla** 1: 181
            - (y) Stroma cortical; ostiole small; spores subhyaline **Cryptosphaeria** 1: 182
        - (b) Asci many-spored
          - x. Stroma manifest, cortical or woody **Cryptovalsa** 1: 187
          - y. Stroma obsolete, cortical **Cryptosphaerella** 1: 186
      - b. Stroma different from the substance of the matrix
        - (1) Asci 8-spored; stroma effuse or disciform **Diatrype** 1: 191, 9: 480
        - (2) Asci many-spored; stroma verruciform **Diatrypella** 1: 200

### Hyalosporae

1: 407, A 58, 9: 577, 11: 289, 14: 515, 16: 452, 17: 573

Spores 1-celled, hyaline or nearly hyaline, ovoid, oblong or fusoid, rarely irregular or stellate, not allantoid.

- I. Perithecia single or separate
  - 1. Perithecia beaked or with a stellate ostiole
    - a. Perithecia subcarbonous

- (1) Spores normal, i. e., not modified
  - (a) Perithecia superficial, glabrous or dark hairy  
**Ceratostomella** 1: 408
  - (b) Perithecia innate-erumpent, yellow-hairy  
**Camptosphaeria** 1: 413
- (2) Spores with a ring-like appendage  
**Rostrella** 17: 609
- b. Perithecia submembranous, usually phyllogenous
  - (1) Ostiole black, not stellate  
**Gnomoniella** 1: 413
  - (2) Ostiole white, stellate with black wartlike appendages  
**Rinia** 17: 591
- 2. Perithecia not beaked
  - a. Perithecia covered
    - (1) Asci 1-2- or 4-8-spored
      - (a) Paraphyses present  
**Physalospora** 1: 433  
(incl. **Stigmatula** 1: 543)
      - (b) Paraphyses lacking
        - x. Spores long-caudate
        - (x) Spores caudate at one end only  
**Urcospora** 1: 448
        - (y) Spores caudate at both ends  
**Urosporella** 14: 523
    - y. Spores not caudate
      - (x) Asci 1-2-spored
        - m. Perithecia perforate  
†**Diplospor** 11: 292  
(**Geminispora**)
        - n. Perithecia closed, then splitting irregularly at apex  
**Spolverinia** 17: 577
      - (y) Asci 4-8-spored
        - m. Perithecia lenticular, perforate  
**Laestadia** 1: 420
        - n. Perithecia globose, papillate  
**Phomatospora** 1: 432
  - (2) Asci many-spored
    - (a) Perithecia glabrous  
**Ditopella** 1: 450
    - (b) Perithecia strigose-pilose  
**Polytrichia** 1: 451
- b. Perithecia superficial
  - (1) Perithecia smooth, i. e., glabrous
    - (a) Spores stellate  
**Inzengaea** 9: 610
    - (b) Spores not stellate
      - x. Perithecia on a dark crustose subicle  
**Pilgeriella** 16: 464
      - y. Perithecia not on a subicle
        - (x) Perithecia surrounded by dark hyphae at base  
**Guignardiella** 16: 465
        - (y) Perithecia without dark hyphae at base  
**Wallrothiella** 1: 455  
(incl. **Zignoina** 2: 219)
  - (2) Perithecia hairy
    - (a) Asci 8-spored  
**Trichosphaeria** 1: 452
    - (b) Asci 16-spored  
**Trichosphaerella** 9: 604

## II. Perithecia upon or within a stroma or subicle

1. Perithecia beaked **Glomerella** 16: 452, 17: 573
2. Perithecia not beaked
  - a. Perithecia immersed in a subicle **Scortechinia** A 68, 9: 604
  - b. Perithecia in or upon a stroma
    - (1) Stroma radiate, phyllogenous **Trabutia** 1: 449
    - (2) Stroma not radiate, usually caulicole
      - (a) Necks of perithecia wanting, stroma disk-like
 **Botryosphaeria** 1: 456  
(incl. **Gibellia** A 406, 9: 608 and  
**Coutinia** 17: 589)
      - (b) Necks of perithecia present, stroma valsiform
 **Cryptosporella** 1: 466  
(incl. **Diaporthopsis** 9: 610)

**Phaeosporae**

1: 214, 9: 481, 11: 278, 14: 489, 16: 427, 17: 593

Spores 1-celled, colored, usually yellowish or brown, ovoid, oblong or fusoid

## I. Perithecia separate, at least without a stroma

1. Covered, often erumpent
  - a. Asci 1-spored **Haplosporium** A 40, 9: 495
  - b. Asci 4-8-spored
    - (1) Perithecia covered by the blackened adhering epiderm
 **Anthostomella** 1: 278
    - (2) Perithecia erumpent with a stellate volva
 **Astrocystis** 1: 293
  - c. Asci many-spored
    - (1) Spores smooth **Müllerella** A 40, 9: 495
    - (2) Spores verrucose **Mesneria** 16: 440
2. Superficial or subsuperficial
  - a. Perithecia long-beaked
    - (1) Spores lunulate; fimicole **Micrascus** A 37, 9: 483
    - (2) Spores globose to elliptic; not fimicole
 **Ceratostoma** 1: 215
  - b. Perithecia not beaked
    - (1) Perithecia submembranous
      - (a) Spores with a mucous sheath or tail; usually fimicole
        - x. Asci 4-8-spored
        - (x) Spores with a hyaline tail or cauda
 **Sordaria** 1: 230
        - (y) Spores with a mucous sheath
          - m. Perithecia sparse **Hypocopa** 1: 240
          - n. Perithecia densely aggregate, almost stroma-like
 **Coprolepa** 1: 248
        - y. Asci many-spored, spores usually caudate
 **Philocopa** 1: 249
      - (b) Spores without mucous sheath or tail
        - x. Perithecia with simple setae, asci persistent
 **Helminthosphaeria** 1: 230



- y. Perithecia with branched, hooked or spiral setae; asci diffluent  
(x) Spores subglobose to elliptic

**Chaetomium** 1: 220

- (y) Spores triangular

**Bommerella** A 38, 9: 486

- (2) Perithecia typically carbonous

**Rosellinia** 1: 252

(incl. **Pleosporopsis** 14: 501 and

**Tyimpanopsis** 11: 283

- (3) Perithecia coriaceous, firm, ascending-elongate

**Bombardia** 1: 277

## II. Perithecia in a stroma

1. Stroma immersed, somewhat woody; perithecia membranous

**Anthostoma** 1: 293

2. Stroma superficial, carbonous or leathery; perithecia carbonous

- a. Stroma terete, fruticose or filiform

- (1) Stroma fimicole

†**Pedisordaria** 14: 494

(**Podosordaria**)

- (2) Stroma not fimicole

- (a) Stroma with a single perithecium at apex

**Capnodiella** 17: 621

- (b) Stroma containing many perithecia

- x. Perithecia immersed laterally

- (x) Stroma fruticose, clavate or filiform

**Xylaria** 1: 309

(incl. **Kretschmaria** 9: 565)

- (y) Stroma disk-like or cupulate above

**Xylariodiscus** 16: 449

- y. Perithecia immersed vertically

- (x) Perithecia immersed annulately about the truncate apex

**Camillea** 1: 346

- (y) Perithecia crowded beneath an operculate disk

**Henningisia** 16: 450

- b. Stroma effuse, globose or cupulate, adnate or substipitate

- (1) Conidia superficial on the young stroma

- (a) Stroma usually fimicole

**Poronia** 1: 348

- (b) Stroma not fimicole

- x. Stroma concentrically zonate

**Daldinia** 1: 393

- y. Stroma not concentrically zonate

- (x) Stroma repand-pulvinate, somewhat hollow

**Ustilina** 1: 351

- (y) Stroma solid

- m. Stroma subglobose, hemispheric or obpiriform

- (m) Stroma not modified with squarrose papery membranes

**Penzigia** 9: 567

- (n) Stroma modified by squarrose papery membranes

**Squamotubera** 17: 620

- n. Stroma effuse

- (m) Perithecia immersed, necks rather long

**Bolinia** 1: 352

(n) Perithecia innate-prominent, necks lacking

**Hypoxylum** 1: 352

(2) Conidia arising beneath the upper layer of the disk-like or cupulate stroma

(a) Perithecia flask-shaped

**Nummularia** 1: 395

(b) Perithecia long-cylindric

**Solenoplea** 17: 619

### **Hyalodidymae**

1: 475, 9: 611, 11: 295, 14: 525, 16: 468, 17: 635

Spores 1-septate (2-celled), hyaline or subhyaline, ovoid, oblong or fusoid

## **I. Perithecia separate**

### **1. Perithecia covered or nearly so**

#### **a. Perithecia beaked, submembranous**

(1) Asci 8-spored

**Gnomonia** 1: 561

(2) Asci many-spored

**Rehmiella** 9: 676

#### **b. Perithecia not beaked**

(1) Asci 8-spored

(a) Perithecia in a phyllogenous pseudostroma

**Hypospilina** 2: 190

(b) Perithecia not in a phyllogenous pseudostroma

#### **x. Paraphyses lacking**

**Sphaerella** 1: 476

(incl. *Lizoniella* 17: 661)

#### **y. Paraphyses present**

(x) Spores surrounded with mucus

**Massarinula** 14: 536

(y) Spores not surrounded with mucus

m. Spores septate near the base

**Apiospora** 1: 539

(incl. *Stigmatea* 1: 541)

n. Spores septate near the middle

(m) Perithecia smooth

**Didymella** 1: 545

(incl. *Stigmatea* 1: 545)

(n) Perithecia long-hairy

**Arcangelia** 9: 696

(2) Asci 16-24-spored

(a) Asci 16-spored

**Mycosphaerella** 9: 659

(b) Asci 24-spored

**Hariotia** 9: 672

### **2. Perithecia superficial or nearly so**

#### **a. Perithecia beaked**

(1) Spores expelled in a mucous mass

**Spumatoria** 16: 1134

(2) Spores not expelled in a mucous mass

**Lentomita** 1: 584

#### **b. Perithecia not beaked**

(1) Perithecia smooth

(a) Asci 8-spored

#### **x. Paraphyses lacking**

(x) Perithecia borne in lichen thalli

**Pharcidia** 9: 676, 17: 635

(incl. *Epicymatia* 1: 570)

(y) Perithecia not in lichen thalli

**Bertia** 1: 581

## y. Paraphyses present

- (x) Spores with a mucous layer produced into a spatulate ring  
**Pteridiospora** 14: 539

## (y) Spores without a mucous layer

- m. Spores ellipsoid to fusoid **Melanopsamma** 1: 575

- n. Spores botuliform **Thaxteria** 9: 687

- (b) Asci 16-spored **Pseudolizonia** 9: 682

## (2) Perithecia with hairs or bristles

## (a) Paraphyses lacking

- x. Perithecia lichenicole **Echinothecium** 16: 484

- y. Perithecia typically on leaves, rarely on stems

**Venturia** 1: 586

## (b) Paraphyses present

**Eriosphaeria** 1: 597

## II. Perithecia cespitose

**Othiella** 1: 739, 17: 662

## III. Perithecia in, or rarely upon, a stroma

## 1. Stroma scanty

- a. Perithecia smooth

**Gibbera** 1: 599

- b. Perithecia setose

**Cacosphaeria** 9: 699

## 2. Stroma well-developed

- a. Stroma white or colored

- (1) Stroma white and soft

**Melchiora** 14: 538

- (2) Stroma bright yellow

**Endothia** 1: 601

- b. Stroma black, rarely yellowish

- (1) Perithecia botryose, erumpent, superficial

**Myrmaecium** 1: 600

- (2) Perithecia immersed

- (a) Spores septate near the base

**Aplacodina** 16: 485

- (b) Spores septate near the middle

- x. Stroma valsa-like

- (x) Conidial stage **Melanconium**

**Melanconis** 1: 602

- (y) Pycnidial stage **Rabenhorstia**

**Hercospora** 1: 605

- (z) Pycnidial stage **Phoma**

**Diaporthe** 1: 606

- y. Stroma eutype-like or diatrype-like

**Euporthe** 1: 631, 1: 662

**Phaeodidymae**

1: 701, 9: 723, 11: 312, 14: 551, 16: 498, 17: 675

Spores 1-septate, dark, fuliginous to brown, ovoid, oblong or fusoid

## I. Perithecia separate

## 1. Perithecia covered

- a. Paraphyses lacking

**Phaeosphaerella** 9: 723

(incl. **Lizonia** 1: 574)

- b. Paraphyses present

- (1) Asci 8-spored

- (a) Spores surrounded by a hyaline sheath

**Massariella** 1: 716

- (b) Spores without a sheath **Didymosphaeria** 1: 701
  - (2) Asci many-spored **Tichothecium** 17: 676, 9: 723
- 2. Perithecia superficial or immersed at the base
  - a. Subicle present
    - (1) Perithecia beaked
      - (a) Paraphyses lacking **Rhynchomeliola** A. 127, 9: 751
      - (b) Paraphyses present **Gibellina** A: 413, 9: 745, 11: 317
    - (2) Perithecia not beaked
      - (a) Perithecia glabrous **Neopeckia** A: 26, 9: 749
      - (b) Perithecia setose **†Dimerosporis** 17: 686  
(*Dimerosporiopsis*)
  - b. Subicle lacking
    - (1) Perithecia beaked
      - (a) Asci paraphysate **Rhynchostoma** 1: 730
      - (b) Asci not paraphysate **†Dysrhynchis** 17: 689  
(*Henningsomyces*)
    - (2) Perithecia not beaked
      - (a) Perithecia glabrous
        - x. Perithecia carbonous **Amphisphaeria** 1: 718
        - y. Perithecia membranous or submembranous
          - (x) Asci 8-spored
          - m. Perithecia globose, fimicole **Delitschia** 1: 732
          - n. Perithecia cupulate, not fimicole **Gaillardielia** 14: 559
          - (y) Asci many-spored **Delitschiella** 17: 688
      - (b) Perithecia setose **Protoventuria** A: 113, 9: 741
- II. Perithecia cespitose or forming a crust, not stromate
  - 1. Perithecia forming an effuse crust **Parodiella** 1: 717
  - 2. Perithecia in groups
    - a. Perithecia foliicole **Pseudotthia** 16: 507
    - b. Perithecia lichenicole **Sorothelia** A: 122, 9: 728
    - c. Perithecia ramicole **Oththia** 1: 735
- III. Perithecia in a stroma
  - 1. Spore with a mucous covering **Massariovalsa** 9: 755
  - 2. Spore without a mucous covering
    - a. Stroma erect, subterete
      - Xylobotryum** 11: 319, 14: 20
      - (*Trachyxylaria* 16: 510, *Xyloceras* 17: 690)
    - b. Stroma flat, round or cushion-like, immersed or emerging
      - (1) Paraphyses lacking
        - (a) Stroma bearing conidia of *Melanconium* **Melanconiella** 1: 740
        - (b) Stroma without conidia **Camarops** 1: 753
      - (2) Paraphyses present
        - (a) Stroma phyllogenous; perithecia superficial **Licopolia** 16: 508

(b) Stroma not phyllogenous

x. Perithecia valsoid

**Valsaria** 1: 741

y. Perithecia eutypoid

**Endoxylina** 11: 318

### **Hyalophragmiae**

2: 152, 9: 824, 11: 332, 14: 581, 16: 528, 17: 692

Spores 2-several-septate, hyaline, oblong to cylindric

## **I. Perithecia separate**

### **1. Perithecia covered or erumpent**

#### **a. Perithecia beaked**

(1) Perithecia xylogenous, carbonous

**Ceratosphaeria** 2: 227

(2) Perithecia phyllogenous, submembranous

(a) Spores separating into halves

**Cryptoderis** 2: 229

(b) Spores not separating into halves

**Gnomoniopsis** 17: 716

#### **b. Perithecia not beaked**

(1) Spores with a mucous covering

**Massarina** 2: 153

(2) Spores without a mucous covering

(a) Perithecia submembranous, pseudostroma lacking

x. Paraphyses lacking

**Sphaerulina** 2: 186

y. Paraphyses present

(x) Spores muticate

**Metasphaeria** 2: 156

(incl. **Charrinia** 14: 585)

(y) Spores with a seta or cusp at either end

**Ceriosporella** 2: 184, 14: 19

(b) Perithecia membranous, in a leafy pseudostroma

**Hyospila** 2: 189

(c) Perithecia subcarbonous, pseudostroma lacking, spores 20-30-septate

**Saccardoella** 2: 190

## **2. Perithecia superficial or subsuperficial**

### **a. Perithecia glabrous**

(1) Perithecia stalked, covered with a bright powder

**Bombardiastrum** 11: 338

(2) Perithecia not stalked, powdery covering lacking

(a) Spores 2-septate

**Melomastia** 2: 213

(b) Spores typically 3 or more-septate

x. Perithecia carbonous, black

**Zignoella** 2: 214

(incl. **Bertiella** 17: 708)

y. Perithecia softish, greenish or reddish

**Winterina** 14: 589

### **b. Perithecia hairy or byssisede**

(1) Perithecia of one color

(a) Spores chain-like, separating into globose joints

**Hormosperma** 14: 591

(b) Spores not separating into joints

x. Perithecia carbonous, large

(x) Spores cylindric, elongate

**Lasiosphaeria** 2: 191

- (y) Spores fusoid, somewhat short  
**Enchnosphaeria 2: 205**
- y. Perithecia submembranous, small  
**Acanthostigma 2: 207**
- z. Perithecia fleshy-coriaceous, hairs fascicled on a central disk  
**Actiniopsis 16: 543**
- (2) Perithecia of two colors, usually reddish at vertex  
**Herpotrichia 2: 211**
- II. Perithecia cespitose, erumpent, superficial, membranous  
**Baumiella 17: 708**
- III. Perithecia in a stroma or on a subicle
1. Perithecia on a subicle; asci many-spored, paraphyses lacking  
**Sydowia 11: 341**
2. Perithecia in a stroma
- a. Stroma lichenicole, white, lanose  
**Dichosporium 16: 542**
- b. Stroma not lichenicole, black
- (1) Stroma immersed  
**Calospora 2: 231**
- (2) Stroma superficial
- (a) Stroma lentiform, adnate to the pycnidium  
**Melanops 2: 231**
- (b) Stroma pulvinate or hemispheric  
**Holstiella 14: 593**
- Phaeophragmiae**
- 2: 1, 9: 759, 11: 319, 14: 561, 16: 510, 17: 718
- Spores 2-several-septate, olive, melleous or fuliginous, oblong to cylindric
- I. Perithecia separate
1. Perithecia covered or erumpent
- a. Spores with a mucous covering  
**Massaria 2: 2**
- b. Spores without a mucous covering
- (1) Perithecia depressed beneath a black cortical clypeus  
**Clypeosphaeria 2: 90**
- (2) Perithecia without a stromatic clypeus
- (a) Spores muticate
- x. Paraphyses lacking  
**Phaeospora 16: 519**
- y. Paraphyses present
- (x) Cells of spore concolorous
- m. Perithecia glabrous
- (m) Perithecia rostrate  
**Rhynchosphaeria 16: 524**
- (n) Perithecia not beaked
- r. Spores cylindric, connected in pairs in the ascus  
**Leptosphaeropsis 9: 770, 11: 321**  
**Leptosphaeria 2: 13**  
 (incl. *Cladosphaeria* 11: 321, *Chitonospora* 9: 797)
- s. Spores separate  
**Pocosphaeria 11: 325**  
**Heptameria 2: 88**  
 (incl. *Passeriniella* 11: 326)
- (b) Spores caudate or cuspidate
- x. Spores caudate at base  
**Rebentischia 2: 12**
- y. Spores cuspidate at both ends  
**Ceriospora 14: 19, 2: 184**

2. *Perithecia* superficial or subsuperficial
    - a. *Perithecia* glabrous
      - (1) Phytophilous
        - (a) Spores finally separating into joints
          - x. Joints 1-celled *Ohleriella* 17: 736
          - y. Joints 2-celled *Ohleria* 2: 96
        - (b) Spores not separating into joints
          - x. *Perithecia* smooth or nearly so
          - (x) Spores biconic with a mucous covering  
*Caryospora* 2: 122
          - (y) Spores medium, no mucous covering
            - m. Ostiole narrow *Melanomma* 2: 98
            - n. Ostiole widely open *Trematosphaeria* 2: 115
        - y. *Perithecia* verrucose  
*Stuartella* 2: 123
      - (2) Fimicole  
*Sporormia* 2: 123
    - b. *Perithecia* pilose or byssiside
      - (1) *Perithecia* concolorous
        - (a) Spores cylindric, elongate \**Lasiosphaeris* 2: 194
        - (b) Spores fusoid, somewhat short *Chaetosphaeria* 2: 92
      - (2) *Perithecia* discolorous at the vertex  
\**Herpothrix* 2: 211
- II. *Perithecia* cespitose, erumpent  
*Gibberidea* 2: 132
- III. *Perithecia* in a stroma
  1. Stroma lichenicole  
†*Trematosphaeris* 17: 735  
(*Trematosphaeriopsis*)
  2. Stroma not lichenicole
    - a. Asci 1-spored  
*Titania* 9: 823
    - b. Asci 4-8-spored
      - (1) Stroma valsa-like, innate
        - (a) Asci 4-spored *Aglaospora* 2: 133
        - (b) Asci 6-8-spored
          - x. Acervuli covered with a reddish or yellowish bran  
*Thyridaria* 2: 140
          - y. Acervuli not covered with a bran  
*Pseudovalsa* 2: 135
      - (2) Stroma eutype-like, i. e., woody, effuse
        - (a) Paraphyses lacking *Cryptosphaerina* 16: 521
        - (b) Paraphyses present *Kalmusia* 2: 142
    - (3) Stroma pulvinate, emerging *Melogramma* 2: 144

#### Hyalodictyae

2: 238, 11: 349, 9: 872, 14: 611, 16: 554, 17: 743

Spores transversally and longitudinally septate, usually muriform,  
hyaline, oblong to fusoid.

- I. *Perithecia* separate
  1. *Perithecia* covered or erumpent
    - a. Asci 8-spored
      - (1) Paraphyses lacking

- (a) Spores separate **Pleosphaerulina** 11: 350
  - (b) Spores in a common mucus **Diplothea** 16: 555
  - (2) Paraphyses present
    - (a) Perithecia covered by a stromatic clypeus **Peltosphaeria** 9: 898
    - (b) Perithecia without a clypeus **Catharinea** 11: 350
  - b. Asci 16-spored; perithecia setose **Capronia** 2: 288
  - 2. Perithecia superficial
    - a. Perithecia glabrous
      - (1) Perithecia softish, greenish or reddish **Winteria** 14: 589
      - (2) Perithecia hard, black
        - (a) Perithecia beaked **Rhamphoria** 2: 307
        - (b) Perithecia not beaked **Tichosporella** 11: 351
    - b. Perithecia setose or hairy
      - (1) Perithecia globose, setose and byssisede **Boerlagella** 14: 612
      - (2) Perithecia turbinate, disk with fascicled hairs **Ophiodictyum** 16: 555
  - II. Perithecia in a stroma
    - 1. Perithecia projecting, setose **Berlesiella** 9: 914
    - 2. Perithecia immersed
      - a. Stroma effuse, eutypeous **Thyridella** 11: 351
      - b. Stroma circular, valsous **Clethruidium** 11: 350, 2: 332
- Phaeodictyae**  
 2: 238, 9: 872, 11: 341, 14: 594, 16: 544, 17: 746.  
 Spores muriform, yellow to brown, oblong to fusoid.
- I. Perithecia separate
    - 1. Perithecia covered or crumpled
      - a. Spores with a mucous layer **Pleomassaria** 2: 239
      - b. Spores without a mucous layer
        - (1) Perithecia without a phyllogenous pseudostroma **Julella** 2: 289
        - (a) Asci 1-2-spored
        - (b) Asci 8-spored
          - x. Paraphyses lacking **Leptosphaerulina** 17: 746
          - y. Paraphyses present
            - (x) Perithecia covered by a black stromatic clypeus **Phaeopeltosphaeria** 11: 344
            - (y) Perithecia not covered by a black stromatic clypeus
      - m. Perithecia glabrous
        - (m) Spores muticate
          - r. Perithecia coriaceous **Karstenula** 2: 240
          - s. Perithecia membranous
        - (r) Spores rounded or terete
          - h. Wall of perithecium single **Pleospora** 2: 241



- i. Wall of perithecium double  
**Scleroplea** 16: 548
      - (s) Spores compressed, flattened
      - h. Perithecia smooth **Clathrospora** 9: 894
      - i. Perithecia hairy **\*Comoclathris**
      - (n) Spores appendaged at both ends  
**Delacourea** 2: 288
    - n. Perithecia setose, especially about ostiole  
**Pyrenophora** 2: 277
  - (2) Perithecia in a phyllogenous pseudostroma  
**Isothea** 2: 290
  - 2. Perithecia superficial
    - a. Phytogenous
      - (1) Perithecia soft, light colored **Winteria** 14: 589
      - (2) Perithecia carbonous, black
        - (a) Perithecia corrugate-tuberculate  
**Crotonocarpia** 2: 306
        - (b) Perithecia not corrugate
          - x. Perithecia glabrous **Tichospora** 2: 290
          - y. Perithecia hairy **Pleosphaeria** 2: 304
    - b. Fimicole; each spore of 3 10-celled chains  
**Pleophragmia** 2: 307
- II. Perithecia cespitose **Cucurbitaria** 2: 307
- III. Perithecia in a stroma **Montagnula** 14: 603
- 1. Spores with a mucous layer **Thyridium** 2: 323
  - 2. Spores without a mucous layer **Fenestella** 2: 325
    - a. Stroma effuse, eutypeous
    - b. Stroma valvous
- Scolecosporae**
- 2: 337, 9: 923, 11: 351, 14: 613, 16: 557, 17: 767
- Spores linear or filiform, continuous or septate, hyaline or yellowish.
- I. Perithecia separate
- 1. Perithecia covered or erumpent
    - a. Perithecia covered by a phyllogenous clypeus  
**Linospora** 2: 354
  - b. Perithecia not covered by a clypeus **Ophiognomonina** 17: 776
    - (1) Perithecia beaked
    - (2) Perithecia not beaked
      - (a) Perithecia glabrous
      - x. Spores muticate
        - (x) Spores in a hyaline sheath **Ophiomassaria** 11: 353
        - (y) Spores not in a hyaline sheath
      - m. Perithecia globose to conoid  
**Ophiobolus** 2: 337
      - n. Perithecia cylindric, truncate  
**Cylindrina** A: 421, 9: 937
  - y. Spores awned at each end

- (x) Perithecia very large, disk-form, corticole  
**Therrya 2: 358**
- (y) Perithecia small, globose, on grasses and palms  
**Dilophia 2: 357**  
**Ophiochaete 11: 353**
- (b) Perithecia hairy  
**Ophiochaete 11: 352**
- 2. Perithecia superficial or immersed at base
  - a. Perithecia beaked  
**Ophiochaete 11: 352**
  - b. Perithecia not beaked  
(1) Perithecia fimicole  
**Bovilla 2: 360**
  - (2) Perithecia not fimicole  
(a) Perithecia glabrous  
x. Perithecia globose  
(x) Perithecia immersed at base  
**Acerbia 11: 353, 14: 619**
  - (y) Perithecia wholly superficial  
**Leptospora 14: 619**
  - y. Perithecia elongate cylindric; ostiole sulcate  
**Bactrosphaeria 14: 617**  
**Acerbiella 17: 768**
  - (b) Perithecia hairy
- II. Perithecia in a stroma
  - I. Stroma superficial
    - a. Perithecia in an effuse definite stroma  
**Maurya 14: 620**
    - b. Perithecia densely heaped in a thin vanishing stroma  
**Pseudomeliola 9: 938**
  - 2. Stroma immersed or erumpent
    - a. Stroma erumpent, yellow within  
**Sillia 1: 361**
    - b. Stroma immersed, valscous
      - (1) Necks of perithecia short, scarcely converging  
**Vialaea 14: 619**
      - (2) Necks long, converging into a disk  
**Cryptospora 2: 361**

### Family 19. VERRUCARIACEAE

ZAHLEBRUCKNER 51

Mycelium parasitic on bluegreen or yellow green algae, and forming a more or less distinct crustose, foliose or fruticose thallus, the latter usually superficial but sometimes below the surface; perithecia distinct, single or cespitose or united in a stroma, usually globose and ostiolate, membranous, coriaceous or carbonous; asci 1-many-spored; spores various.

- I. Perithecia separate, at least not in a stroma (Cfr. Lichinae, page 74.)
  - i. Algae bluegreen, Nostoc, Scytonema, Sirospion, or Calothrix  
**Subfamily Pyrenidiace 76**
  - a. Asci 4-8-spored
    - (1) Asci 4-spored; spores 3-septate  
**Pyrenidium 77**
    - (2) Asci 6-8-spored
      - (a) Spores spheric, 1-celled: algae Calothrix  
**Calothricopsis 165**
      - (b) Spores fusiform, 1-septate

- x. Algae Sirostoma or Scytonema
  - y. Algae Nostoc
    - (c) Spores filiform, continuous
      - Eolichen 76
      - Pyrenocollema 169
  - b. Asci many-spored; spores 1-celled
    - Hassea 76
    - Placothelium 77
- 2. Algae yellow green, Pleurococcus, Palmella, Chroolepus, etc.
  - a. Thallus crustose or gelatinous
    - (1) Thallus gelatinous, hyphae loose
      - Epigloea 53
    - (2) Thallus crustose, not gelatinous, hyphae compact
      - (a) Algae Cystococcus, in sheathed colonies
        - Subfamily Moriola 52
  - x. Thallus without pseudoparenchyma
    - Moriola 52
  - y. Thallus with pseudoparenchyma
    - (x) Asci 8-spored
      - m. Spores dark, 1-septate
        - \*Dimerisma 52
      - n. Spores dark, 4-8-septate
        - \*Phaeomeris 52
      - o. Spores hyaline, 2-4-septate
        - Spheconisca 52
    - (y) Asci many-spored; spores hyaline, 1-celled
      - \*Pleophalis 52
  - (b) Algae Pleurococcus or Palmella
    - Subfamily Verrucariae 53
- x. Paraphyses lacking, or soon disappearing
  - (x) Asci 1-8-spored
    - m. Algae present within the perithecium; spores muriform
      - (m) Spores hyaline
        - \*Phalostauris 57
      - (n) Spores dark
        - Staurothele 56
    - n. Algae lacking in perithecium
      - (m) Spores 1-celled
        - r. Spores globose to elliptic
          - (r) Perithecia more or less superficial
            - h. Spores hyaline
              - Verrucaria 54
            - i. Spores dark
              - \*Phaeosporis 55
          - (s) Perithecia immersed
            - \*Lithoecis 55
        - s. Spores vermiform, clavate at each end
          - Saccopyrenia 54
    - (n) Spores 2-4-celled, hyaline
      - r. Spores 2-celled
        - Thelidium 56
      - s. Spores 4-celled
        - \*Phragmothele 56
    - (o) Spores muriform
      - Polyblastia 56
  - (y) Asci many-spored
    - Trimmatothele 56
- y. Paraphyses persistent
  - (x) Algae present in the perithecium
    - Thelenidia 57
  - (y) Hymenial algae lacking
    - m. Perithecia with normal ostiole

- (m) Spores 1-celled
  - r. Spores hyaline **Thrombium 57**
  - s. Spores dark **\*Phaeothrombis 57**
- (n) Spores septate
  - r. Spores elliptic, 3-few-septate **Geisleria 57**
  - s. Spores muriform
    - (r) Spores hyaline **Microglæna 57**
    - (s) Spores dark **\*Phaeoglæna 57**
  - t. Spores needle-shaped, many-celled **Gongylia 57**
- n. Ostiole margined by a broad disk
  - (m) Spores transeptate **Aspidopyrenium 58**
  - (n) Spores muriform **Aspidothelium 58**
- (c) Algae Chroolepus
  - x. Perithecia upright, with vertical ostiole **Subfamily Pyrenulæ 62**
- (x) Paraphyses free, simple
  - m. Perithecia smooth
    - (m) Spores 1-celled, colorless **Coccotrema 66**
    - (n) Spores septate
      - r. Asci 4-8-spored
      - (r) Asci persistent
        - h. Spores transeptate
        - (h) Spores hyaline
          - + . Spores 1-septate
            - (+) Spore cells separating **\*Dichoporis 66**
            - (—) Spore cells not separating **\*Diporina 66**
          - . Spores 2-many-septate **Porina 66**
        - (i) Spores dark
          - + . Spores 1-septate **\*Dipyrenis 68**
          - . Spores several-septate **Pyrenula 67**  
(incl. **Blastodesmia 67**)
      - i. Spores muriform
        - (h) Spores hyaline **Clathroporina 67**
        - (i) Spores brown **Anthracotheceum 68**
      - (s) Asci evanescent; spores acicular, clear **Belonia 67**
    - s. Asci many-spored; spores septate, clear
      - (r) Spores 1-celled **\*Holothelis 67**
      - (s) Spores septate
        - h. Spores 1-septate **\*Dithelopsis 67**

- i. Spores 2-many-septate
  - Thelopsis** 67
- n. Perithecia with stiff fascicled hairs
  - Stereochlamys** 68
- (y) Paraphyses lacking, or branched and united
  - m. Ostiole round or dot-like
    - (m) Spores hyaline
    - r. Spores 1-septate **\*Pyrenyllum** 64
    - s. Spores 2-many-septate
    - (r) Spores oval to oblong
      - Arthropyrenea** 64
      - (incl. **Pseudopyrenula** 65)
    - (s) Spores acicular to filiform
      - Leptorhaphis** 65
    - t. Spores muriform **Polyblastiopsis** 65
  - (n) Spores brown
    - r. Spores 1-septate **Microthelia** 62
    - s. Spores 2-several-septate **\*Polythelis** 64
  - n. Ostiole radiate, torn or lobed
    - Asteroporum** 62
- y. Perithecia oblique or horizontal with oblique or lateral ostiole
  - Subfamily Paratheliae** 71
- (x) Spores transeptate
  - m. Spores hyaline
    - (m) Spores 1-septate **\*Ditremis** 71
    - (n) Spores several-septate, oblong
      - Pleurotrema** 71
      - (incl. **Plagiotrema** 72)
  - (o) Spores filiform, many-celled
    - \*Trichotrema** 71
    - Parathelium** 72
  - n. Spores brown
  - (y) Spores muriform
    - m. Spores hyaline **Campylothelium** 72
    - n. Spores brown **Pleurothelium** 72
- (d) Algae **Phyllactidium** or **Cephaleurus**
  - Subfamily Strigulae** 74
- x. Perithecia smooth
  - (x) Paraphyses simple, free
    - m. Spores transeptate
      - (m) Spores 1-septate **\*Phylloporis** 75
      - (n) Spores several-septate
        - r. Thallus uniform **Phylloporina** 75
        - s. Thallus orbicular, lobed at edge
          - Strigula** 76
    - n. Spores muriform **Phyllobathelium** 75
  - (y) Paraphyses branched and united
    - m. Spores 1-celled, dark **Haplopyrenula** 74
    - n. Spores 2-4-celled, brown **Microtheliopsis** 75

- y. Perithecia with fascicled nearly horizontal hairs at apex  
**Trichothelium 75**
  - b. Thallus foliose or scaly **Subfamily Dermatocarpae 58**
    - (1) Algae *Palmella*
    - (a) Hymenial algae lacking
      - x. Paraphyses lacking, or fused into a mass
      - (x) Paraphyses lacking; thallus without cortex  
**Normandina 59**
      - (y) Paraphyses fused; thallus corticate
        - m. Spores 1-celled, colorless **Dermatocarpum 60**
        - n. Spores septate
          - (m) Spores colorless **Placidiopsis 60**
          - (n) Spores brown **Heterocarpum 60**
      - y. Paraphyses persistent
        - (x) Spores 1-celled, brown **Anapyrenium 59**
        - (y) Spores muriform, colorless **Psoroglaena 59**
      - (b) Hymenial algae present **Endocarpum 61**
    - (2) Algae *Chroolepus*; spores colorless, 1-celled  
**Lepolichen 69**
    - (3) Algae *Prasiola* **Mastodia 241**
  - c. Thallus fruticose, branched, with *Pleurococcus*; spores muriform, brown  
**Pyrenothamnia 61**
- II. Perithecia in a stroma (Cfr. *Pertusariae*, page 79.)
- 1. Perithecia upright, with individual pores **Subfamily Trypetheliae 69**
    - a. Spores colorless
      - (1) Spores transeptate
        - (a) Spores oval to fusiform **Trypethelium 70**
        - (b) Spores filiform **Tomasiella 69**
      - (2) Spores muriform **Laurera 71**
    - b. Spores brown
      - (1) Spores transeptate **Melanotheca 70**
      - (2) Spores muriform **Bottaria 71**
  - 2. Perithecia oblique or horizontal, with a common canal or pore **Subfamily Astrotheliae 72**
    - a. Spores transeptate
      - (1) Spores colorless **Astrothelium 73**  
(incl. **Lithothelium 73**)
      - (2) Spores brown **Pyrenastrum 73**
    - b. Spores muriform
      - (1) Spores colorless **Heufleria 74**
      - (2) Spores brown **Parmenteria 74**
- III. Perithecia sunken in stroma-like warts; horizontal thallus lacking; asci many-spored; spores 1-celled, clear **Thelocarpum 150**

#### Family 20. HYPOCREACEAE

2: 447, 9: 941, 11: 354, 14: 621, 16: 559, 17: 777.

Mycelium scanty and immersed or producing a subicle or a stroma; perithecia

globoid, sometimes beaked, fleshy, waxy or waxy-membranous, bright colored, usually reddish, more rarely blue, yellow or whitish, never carbonous, opening by a round pore or ostiole, single, cespitose or composite in a stroma; asci and spores as in Sphaeriaceae.

### Allantosporae

17: 778

Spores 1-celled, obtuse, curved-oblong, hyaline or olivascens

One genus

*Allantonectria* 17: 778

### Hyalosporae

2: 447, 9: 941, 11: 354, 14: 621, 16: 559, 17: 778

Spores 1-celled, hyaline

#### I. Perithecia separate

##### 1. Perithecia covered

a. Asci 8-spored

*Hyponectria* 2: 455

b. Asci many-spored

*Thelocarpum* 9: 946

##### 2. Perithecia superficial or nearly so

a. Perithecia beaked; spores ciliate

*Eleutheromyces* 2: 455

b. Perithecia not beaked

(1) Spores smooth

*Nectriella* 2: 448

(2) Spores ciliate or spiny

(a) Spores 1-ciliate at each end

*Heteronectria* 14: 624

(b) Spores spiny, hemispheric

*Cleistosoma* A: 195, 9: 943

#### II. Perithecia cespitose

##### 1. Asci 8-spored

*Lisiella* 9: 945

##### 2. Asci many-spored

*Chilonectria* 2: 453

#### III. Perithecia in a subicle or stroma

##### 1. Perithecia in a subicle, i. e., a cobwebby or cottony stroma

a. Paraphyses lacking, fungicole

*Peckiella* 9: 944

b. Paraphyses numerous, not fungicole

*Byssonectria* 2: 456

##### 2. Perithecia in a definite stroma

a. Stroma effuse, globose, verruciform or linear

(1) Asci 8-spored

(a) Perithecia circinate, valsiform

*Balzania* 16: 561

(b) Perithecia not circinate, mostly irregular

x. Spores globose

*Battarina* 2: 533

y. Spores ovate to oblong

(x) Stroma globose or verruciform

m. Stroma globose, smooth, dark

*Pseudotrype* 16: 561

n. Stroma verruciform, hairy, red

*Selinia* 2: 457

(y) Stroma lirelliform, clear

*Monographus* 2: 457

(z) Stroma effuse, phyllogenous

*Polystigma* 2: 458

(2) Asci many-spored; phyllogenous

*Moelleriella* 14: 626

b. Stroma elongate, erect

- (1) Asci 8-spored  
 (a) Stroma capitate, spores smooth **Sphaerostilbella** 17: 778  
 (b) Stroma clavaria-like; spores asperate **Penicilliopsis** 9: 945  
 (2) Asci 16-spored; stroma clavate; on insects **Podostroma** 11: 355

**Phaeosporae**

2: 459, 9: 949, 11: 355, 14: 626, 16: 562, 17: 781

Spores 1-celled, dark

- I. *Perithecia* separate  
 1. *Perithecia* more or less covered **Baculospora** 9: 952  
 2. *Perithecia* superficial  
 a. *Perithecia* not beaked  
 (1) *Perithecia* smooth  
 (a) Spores globose, verruculose **Neocosmospora** 16: 562  
 (b) Spores oval to elliptic, smooth **\*Sphaerodes** 2: 460  
 (2) *Perithecia* hairy **Erythrocarpum** 9: 950  
 b. *Perithecia* beaked  
 (1) Asci 8-spored **Melanospora** 2: 461  
 (2) Asci many-spored **Scopinella** 9: 953  
 II. *Perithecia* in a subicle or a stroma  
 1. *Perithecia* immersed in a subicle  
 a. *Perithecia* beaked **\*Rhynchomelas** 2: 461  
 b. *Perithecia* not beaked **Sphaeroderma** 2: 459  
 2. *Perithecia* in a stroma  
 a. Spores spheric **Thuemenella** 14: 628  
 b. Spores ovoid  
 (1) Stroma clavate, pendulous **Xylocrea** 16: 451  
 (2) Stroma more or less globose  
 (a) *Perithecia* in one layer **Entonaema** 16: 450  
 (b) *Perithecia* in several layers **†Stromne** 16: 452  
 (Engleromyces)

**Hyalodidymae**

2: 465, 9: 953, 11: 356, 14: 628, 16: 565, 17: 782.

Spores 2-celled, hyaline

- I. *Perithecia* separate or cespitose  
 1. *Perithecia* immersed; in leaves **Charonectria** 2: 466  
 2. *Perithecia* superficial  
 a. *Perithecia* red, yellow or white  
 (1) Asci of one kind, 8-spored  
 (a) *Perithecia* beaked **Rhynchonectria** 17: 798  
 (b) *Perithecia* not beaked  
 x. Spore cells separating **Bresadolella** 17: 797  
 y. Spore cells not separating  
 (x) *Perithecia* smooth



- m. Perithecia often on a tubercularoid base  
**Nectria 2: 479**
- n. Perithecia on or with a stilboid base  
**Sphaerostilbe 2: 511**  
**\*Dasyphthora 2: 505**
- (y) Perithecia hairy
- (2) Asci of two kinds, 8-spored and many-spored  
**Aponectria 2: 516**  
**Metanectria 2: 517**
- (3) Asci many-spored
- b. Perithecia blue or violet
- (1) Asci 8-spored  
**Lisea 2: 517**
- (2) Asci many-spored  
**Cyanocephalum 11: 360**
- II. Perithecia in a subicle or stroma
- 1. Perithecia in a subicle
- a. Perithecia globose-conic, fungicole  
**Hypomyces 2: 466**
- b. Perithecia scutate-dimidiata, phyllogenous  
**Puiggariella 2: 478**
- 2. Perithecia in a stroma
- a. Perithecia adnate to a fruticose stroma  
**Corallomyces 2: 519**
- b. Perithecia immersed in a clavate, globose, pulvinate or effuse stroma  
**Treleasia 14: 640**
- (1) Perithecia long-beaked
- (2) Perithecia not long-beaked
- (a) Spore divided near base  
**Lambro 16: 589**
- (b) Spore divided near middle
- x. Spore cells separating
- (x) Stroma vertically elongate  
**Podocrea 17: 799**
- (y) Stroma globose to effuse
- m. Conidiophore (Stilbum) arising from stroma  
**Stilbocrea 16: 588**
- n. Conidiophore lacking or not Stilbum  
**Hypocrea 2: 520**  
(incl. *Cryphonectria* 17: 783, *My-*  
*cocitrus* 16: 589)
- y. Spore cells not separating  
**Hypocreopsis 9: 980**  
(incl. *Clintoniella* 16: 588)

**Phaeodidymae**

2: 537, 9: 981, 14: 646, 16: 591, 17: 808.

Spores 2-celled, dark

- I. Perithecia separate or cespitose
- 1. Perithecia immersed
- a. Perithecia white, ostiole cylindric; on black fungi  
**Passerinula 2: 537**
- b. Perithecia darkish, ostiole broad, bright; in bark  
**Spegazzinula 2: 537**
- 2. Perithecia superficial
- a. Spore cells separating  
**Neoskofitzia 9: 981**
- b. Spore cells not separating

- (1) Perithecia on or with a stilbum-like base

*Calostilbe* 16: 591

- (2) Perithecia without stilbum-like base, often with *Helminthosporium*

*Letendraea* 2: 538

(incl. *Phaeonectria* 11: 359)

- II. Perithecia in a stroma

*Phaeocreopsis* 16: 591 ✓

### **Hyalophragmiae**

2: 539, 9: 982, 11: 363, 14: 647, 16: 592, 17: 808

Spores 2-several-septate, hyaline

- I. Perithecia separate or cespitose

1. Perithecia immersed, spores falcate

*Cesatiella* 2: 557

2. Perithecia superficial

- a. Perithecia red, yellow or white

- (1) Perithecia on or with a stilbum base

*Stilbonectria* 9: 986

- (2) Perithecia without a stilbum base

- (a) Perithecia astomous

*Malmeomyces* 16: 592

- (b) Perithecia ostiolate

- x. Spores ciliate at each end

*Paranectria* 2: 552

(incl. *Debaryella* 17: 809)

- y. Spores muticate

*Calonectria* 2: 549

- b. Perithecia blue, violet or greenish

- (1) Spores muticate

*Gibberella* 2: 552

- (2) Spores appendiculate each way

*Lecithium* 11: 364

- II. Perithecia in a subicle or in a stroma

1. Perithecia in a subicle

*Berkelella* 9: 989

2. Perithecia in a pulvinate or discoid stroma

*Broomella* 2: 557

### **Phaeophragmiae**

2: 539, 9: 982, 11: 363, 16: 599

Spores 2-several-septate, dark

- I. Perithecia in a large tuberiform stroma

*Peloronectria* 16: 599

### **Hyalodictyae**

2: 558, 9: 990, 11: 364, 14: 650, 16: 599, 17: 814

Spores muriform, hyaline

- I. Perithecia separate or cespitose, superficial

1. Perithecia red or yellow to whitish

- a. Perithecia with a stilbum base

*Megalonectria* 2: 560

- b. Perithecia without a stilbum base

*Pleonectria* 2: 559

2. Perithecia blue or violet

*Pleogibberella* 9: 992

- II. Perithecia in a valsoid stroma

*Thyronectria* 2: 561

### **Phaeodictyae**

2: 558, 9: 990, 11: 364, 16: 600, 17: 815

Spores muriform, dark

- I. Perithecia separate or caespitose
1. Perithecia beaked, asci 8-spored **Bivonella** 9: 989
  2. Perithecia not beaked, asci many-spored **Feracia** 17: 815
- II. Perithecia in a stroma
1. Asci paraphysate
    - a. Stroma conoid, snow-white **Leucocrea** 16: 601
    - b. Stroma tuberiform, rimose **Shiraia** 16: 600
  2. Asci not paraphysate
    - a. Stroma pulvinate, disk greenish **Mattirolia** 9: 993
    - b. Stroma subcrustose **Uleomyces** 11: 364

**Scolecosporae**

2: 562, 9: 993, 11: 365, 14: 651, 17: 815, 16: 601

**Hyaloscoleciae**

Spores needle-shaped or filiform, hyaline or nearly so

- I. Perithecia separate or caespitose
1. Perithecia enclosed in a sack **Oomyces** 2: 564
  2. Perithecia not in a sack
    - a. Perithecia immersed or erumpent
      - (1) Perithecia many-perforate above **Coscinaria** 9: 1003
      - (2) Perithecia with a single ostiole **Micronectria** 9: 996
    - b. Perithecia superficial
      - (1) Perithecia globose-conic, papillate, reddish **Ophionectria** 2: 563
      - (2) Perithecia vertically oblong, not papillate, white **Tubeufia** 14: 652
- II. Perithecia in a subicle or in a stroma
1. Perithecia in a subicle or byssoid stroma
    - Torrubiella** 9: 994  
(**Helminthascus** 16: 616)
  2. Perithecia in a stroma
    - a. Stroma vertical
      - (1) Stroma from a sclerotium or a blackened matrix **Claviceps** 2: 564  
(incl. **Balansia** 9: 997, **Balansiella** 17: 822)
      - (2) Stroma without sclerotium; on insects or fungi **Cordyceps** 2: 566  
**Dussiella** 9: 1004
    - b. Stroma effuse or pulvinate
      - (1) Stroma on a white subicle
      - (2) Stroma without a subicle
        - (a) Stroma effuse, encircling culms **Epichloe** 2: 578
        - (b) Stroma pulvinate to globose
          - x. Spore cells separating
          - (x) Perithecia in a definite peripheral zone **Mycomalus** 16: 604

(y) Perithecia not arranged in a zone

m. Stroma hard and black **Fleischera** 17:819

n. Stroma fleshy and soft

(m) Stroma fertile over entire surface

**Hypocrella** 2:579

(n) Stroma fertile above, sterile below

**Ascopolyporus** 16:605

y. Spore cells not separating

**Echinodothis** 17:819

### **Phaeoscoleciae**

Spores filiform, dark

1. Stroma black, perithecia immersed; spores dilabent, brown

**Konradia** 16:605

## **Family 21. DOTHIDEACEAE**

Mycelium typically producing a stroma, in which the perithecia are more or less completely sunken and reduced to locules; otherwise as in Sphaeriaceae.

### **Hyalosporae**

2:588, A:222, 9:1004, 11:368, 14:663, 16:616, 17:827

Spores 1-celled, hyaline or nearly hyaline, ovoid, oblong or fusoid, rarely globose

I. Asci 8-spored

1. Stroma globose, pulvinate or cup-shaped

a. Stroma cupulate-discoïd, attached at center

**Schweinitziella** 9:1005

b. Stroma pulvinate or subclypeate

(1) Stroma pulvinate

(a) Stroma subcoriaceous

**Bagnisiella** 2:589

(b) Stroma corneous

**Kullhemia** 2:591

(2) Stroma subclypeate, often oval to oblong

**Mazzantia** 2:591

(incl. **Diachora** 11:374)

2. Stroma oblong, linear or effuse

a. Stroma superficial, on flowers

**Hyalodothis** 11:374

b. Stroma erumpent or superficial

(1) Stroma waxy or fleshy

a. Stroma more or less waxy within, linear, black

**Scirrhella** 9:1030

b. Stroma fleshy, white

**Monographus** 2:457

(2) Stroma more or less carbonous, round to effuse

(a) Asci usually shorter than  $30\mu$

**Euryachora** 2:625

(b) Asci usually longer than  $50\mu$

**Phyllachora** 2:594

II. Asci 3-spored; stroma subglobose, subcorneous

**Zimmermanniella** 17:827

### **Phaeosporae**

2:626, 9:1031, 11:374, 14:675, 16:625, 17:841

Spores 1-celled, colored, usually yellowish or brown, ovoid, oblong or fusoid

## I. Stroma subhemispheric to effuse; asci 8-spored

*Auerswaldia* 2: 626**Hyalodidymae**

2: 627, 9: 1034, 11: 375, 14: 676, 16: 625, 17: 844

Spores 1-septate (2-celled), hyaline or subhyaline, ovoid, oblong or fusoid

## I. Stroma pulvinate or disciform

## 1. Stroma pulvinate, erumpent, usually ramicole

## a. Asci 4-8-spored

*Plowrightia* 2: 635

## b. Asci many-spored

*\*Pleodothis* 11: 376

## 2. Stroma disciform, superficial, foliicole

*Microcyclus* 17: 844

## II. Stroma oblong to linear or effuse

## 1. Stroma linear

*Scirrha* 2: 634

## 2. Stroma oblong to effuse, sometimes orbicular

## a. Cells of spore very unequal

*Munkiella* 9: 1034

## b. Cells of spore equal

## (1) Locules immersed in stroma

*Dothidella* 2: 627

## (2) Locules completely exserted from stroma

*Rosenscheldia* 9: 1036**Phaeodidymae**

2: 639, 9: 1043, 11: 377, 14: 680, 16: 628, 17: 852

Spores 1-septate, dark, fuliginous to brown, ovoid, oblong or fusoid

## I. Stroma superficial, disciform

*Maurodothis* 17: 856

## II. Stroma erumpent, pulvinate to effuse

## 1. Stroma usually effuse

*Phaeodothis* 17: 854

## 2. Stroma pulvinate

## a. Stroma subcarbonous

*Russoella* 9: 1044

## b. Stroma subcoriaceous

*Dothidea* 2: 639(incl. *Hypoxylopsis* 17: 855)**Hyalophragmiae**

2: 646, 9: 1045, 11: 377, 14: 682, 16: 629, 17: 856

Spores 2-several-septate, hyaline, oblong to cylindric

## I. Perithecia or locules exserted from the stroma; spores sometimes colored

*Montagnella* 2: 646

## II. Perithecia immersed

## 1. Stroma fleshy or waxy

*Dangardiella* 14: 683

## 2. Stroma carbonous

## a. Perithecia disposed in radiate lines

*Telimena* 16: 631

## b. Perithecia not radiate

*Darwiniella* 9: 1048**Phaeophragmiae**

2: 646, 9: 1045, 11: 377, 14: 682, 16: 629, 17: 857

Spores 2-several-septate, colored, yellowish to brown, oblong to cylindric

## I. Stroma elongate or linear

*Rhopographus* 2: 647

## II. Stroma subhemispheric

*Homostegia* 2: 649

**Hyalodictyae**

8:847

Spores muriform, hyaline, ovate to oblong

- I. Stroma with a round black receptacle stuffed with locules

**Pyrenotheca** 8:847

- II. Stroma disciform or hemispheric

**\*Discostroma** 11:379**Phaeodictyae**

2:651, 9:1051, 11:378, 14:684, 16:632, 17:858

Spores muriform, dark, ovate to oblong

- I. Stroma disciform or hemispheric

**Curreya** 2:651**Scolecosporae**

2:652, 9:1051, 14:685, 16:632, 17:859

Spores filiform, hyaline, continuous, guttate or septate

- I. Asci 8-spored

1. Spores narrowly filiform, 1-2
- $\mu$
- wide

**Ophiodothis** 2:652

2. Spores broadly filiform, 5-8
- $\mu$
- wide

**Oxydothis** 14:674

- II. Asci many-spored

**Myriogenospora** 14:685**Family 22. MYCOPORACEAE**

ZAHLEBRUCKNER 77

Mycelium parasitic on *Palmella* or *Chroolepus*, forming a uniform thallus without a cortex; perithecia reduced to locules in a stroma as in *Dothideaceae*, to which family the genera might well be referred.

- I. Spores transeptate; algae
- Chroolepus*

1. Spores 1-septate

- a. Spores colorless

**\*Chlorodothis** 78

- b. Spores brown

**\*Sciidothis** 78

2. Spores several-septate

- a. Spores colorless

**\*Nothostroma** 78

- b. Spores brown

**\*Mycoporis** 78

3. Spores needle-shaped

**Mycoporellum** 78

- II. Spores muriform; algae
- Palmella*

**Mycoporum** 78**Family 23. COCCOIDEACEAE**

17:860 (16:624)

Stromata with immersed locules, affixed to the matrix by a central stipitiform point, subcarnose when fresh, subcorneous when dry; locules without distinct proper walls.

**Hyalosporae**

16:624

Spores 1-celled, hyaline, ellipsoid

- I. Stroma superficial, disciform-pulvinate, subcarbonous

**Coccoidea** 16:624

- II. Stroma superficial, cupulate-discoid

**Schweinitziella** 9:1005

**Phaeosporae**

17:860

Spores 1-celled, dark, ovoid

- I. Stroma subcarnose, discoid **Coccodiscus** 17:860

**Hyalodidymae**

17:860

Spores 1-septate, hyaline, fusoid

- I. Stroma subcarnose or corneous, disciform-pulvinate  
**Yoshinagaia** 17:860

**Family 24. MICROTHYRIACEAE**

2:658, 9:1053, 11:379, 14:686, 16:633, 17:861

Perithecia separate, or rarely in a stroma, dimidiate, applanate, context usually beautifully radiate, subsuperficial, black, membranous or carbonous, perforate or astomous; asci 4-8-spored, usually short.

**Subfamily Microthyriae**

Perithecia typically not seated on a subicle

**Hyalosporae**

2:659, 9:1053, 11:379, 14:686, 16:633, 17:861

Spores 1-celled, hyaline, ovoid to oblong or fusiform

- I. Spores oblong, curved **Piptostoma** 9:1054  
 II. Spores elliptic to fusiform, straight  
   1. Spores elliptic, short **Myiocoprum** 2:659  
   2. Spores fusiform, long, sometimes 1-septate **Pemphidium** 2:670

**Phaeosporae**

2:662, 9:1054, 16:634, 17:861

Spores 1-celled, dark, globose to oblong

- I. Spores globose; perithecia on a hyaline subicle **Blasdalea** 16:634  
 II. Spores oblong; subicle lacking **Vizella** 2:662

**Hyalodidymae**

2:662, 9:1055, 11:379, 14:687, 16:635, 17:862

Spores 1-septate, hyaline, oblong to fusoid

- I. Asci with paraphyses  
   1. Perithecia with several ostioles **Polystomella** 9:1063  
   2. Perithecia astomous **Clypeolum** 2:667  
 II. Asci without paraphyses  
   1. Perithecia smooth  
     a. Perithecia more or less mytiliform and confluent **Brefeldiella** 9:1063

- b. Perithecia not mytiliform or confluent

**Microthyrium** 2: 662

2. Perithecia setulose

**Chaetothyrium** 9: 1061

**Phaeodidymae**

2: 668, 9: 1064, 11: 381, 14: 689, 16: 639, 17: 865

Spores 1-septate, dark, oblong to fusoid

- I. Perithecia superficial, carbonous, perforate

**Seynesia** 2: 668

**Hyalophragmiae**

2: 668, 9: 1068, 11: 381, 14: 690, 16: 642, 17: 868

Spores 2-several-septate, hyaline, fusoid to cylindric

- I. Perithecia separate

1. Perithecia on a fibrous mycelium

**Trichopeltis** 9: 1068

2. Perithecia without a mycelium

- a. Perithecia smooth

**Micropeltis** 2: 669

- b. Perithecia margined with rigid appendages

**Actiniopsis** 17: 871

- II. Perithecia in a dimidiate many-perforate stroma

**Gilletiella** 14: 691

**Phaeophragmiae**

2: 668, 9: 1068, 11: 381, 14: 690, 16: 642, 17: 872

Spores 2-several-septate, dark, fusoid, to cylindric

- I. Perithecia membranous, subfibrous; spores conglobate

**Phaeoscutella** 17: 872

- II. Perithecia carbonous or coriaceous

**Scutellum** 2: 668

**Hyalodictyae**

A: 253, 9: 1071, 14: 692, 16: 645

Spores muriform, hyaline, oblong to elliptic

- I. Perithecia membranous, ostiolate

**Saccardinula** 9: 1071

**Phaeodictyae**

17: 873

Spores muriform, dark, oblong to elliptic

- I. Perithecia superficial, phyllogenous, subradiate

†**Phaeopeltis** 17: 873

(**Phaeosaccardinula**)

**Scolecosporae**

9: 1072, 16: 646, 17: 873

Spores acicular, hyaline or colored, continuous or septate

- I. Spores separating into cells

**Scolecopeltis** 9: 1072

- II. Spores not separating

**Ophiopeltis** 17: 873

**Subfamily Asterinae**

14: 692, 16: 646, 17: 875

Perithecia typically seated upon an effuse radiate black subicle



**Hyalosporae**

14: 692, 16: 646

- I. Spores hyaline, one-celled

**Asterula** 1: 47, 14: 692**Phaeosporae**

14: 693

- I. Spores dark, one-celled

**Asteronia** 1: 47, 14: 693**Hyalodidymae**

14: 693, 16: 646, 17: 882

- I. Spores hyaline, 1-septate

**Asterella** 1: 42, 14: 698**Phaeodidymae**

14: 693, 16: 646, 17: 875

- I. Spores dark, 1-septate

**Asterina** 1: 39, 14: 693  
(incl. *Trichothyrium* 9: 1062)**Hyalophragmiae**

14: 699, 16: 650, 17: 884

- I. Spores hyaline, several-septate

**Asteridium** 1: 49, 14: 699**Phaeophragmiae**

14: 699, 17: 885

- I. Spores dark, several-septate

**Asteridiella** 14: 701**Family 25. LOPHIOSTOMATACEAE**

2: 672, 9: 1074, 11: 382, 14: 702, 16: 650, 17: 886

Perithecia simple, separate, at first covered, then subsuperficial or insculptate, carbonous, rarely submembranous, black, with a very narrowly rimose, broad and compressed ostiole; asci paraphysate, usually 8-spored; matrix often blackened giving the appearance of a stroma.

**Hyalosporae**

(Not represented)

**Phaeosporae**

2: 673, 17: 886

- I. Spores 1-celled, dark

**Lophiella** 2: 673**Hyalodidymae**

2: 675, 9: 1075, 11: 383, 14: 702, 17: 886

Spores 1-septate, hyaline, oblong to fusoid

- I. Perithecia smooth

**Lophiosphaera** 2: 675

- II. Perithecia hairy, with wool at base

**Lophiotricha** 9: 1082**Phaeodidymae**

2: 673, 9: 1074, 11: 382, 14: 702, 16: 650, 17: 887

- I. Spores 1-septate, dark

**Schizostoma** 2: 673

**Hyalophragmiae**

2: 678, 9: 1076, 14: 703, 16: 651, 17: 887

- I. Spores hyaline, several-septate **Lophiotrema** 2: 678

**Phaeophragmiae**

2: 680, 9: 1083, 11: 383, 14: 704, 16: 651, 17: 887

Spores dark, several-septate

- I. Spores caudate **Brigantiella** 17: 889  
 II. Spores not caudate **Lophiostoma** 2: 689

**Hyalodictyae**

9: 1093

- I. Spores hyaline or nearly so, muriform **Lophidiopsis** 9: 1093

**Phaeodictyae**

2: 710, 9: 1091, 11: 384, 14: 706, 16: 653, 17: 889

- I. Spores dark, muriform **Platystomum** 17: 889  
 (**Lophidium** 2: 710)

**Scolecosporae**

2: 717, 9: 1094

- i. Spores filiform, hyaline or dilutely colored **Lophionema** 2: 717

**Family 26. CORYNELIACEAE**

9: 1073, 11: 385, 16: 650

Perithecia separate or in a stroma, coriaceous, black, lageniform, with an elongated ostiole, perforate at the apex and then broadly expanded and infundibuliform.

**Phaeosporae**

9: 1073, 16: 650

- I. Spores dark, 1-celled, spherical **Corynelia** 9: 1073

**Phaeophragmiae**

11: 385

- I. Spores dark, 3-several-septate **Coryneliella** 11: 385

**Phaeodictyae**

9: 1073

- I. Spores black, stellate, cells radiating **Tripospora** 9: 1073

**Order 9. HYSTERIALES**

Perithecia oblong to linear, rarely round, carbonous or membranous, rarely coriaceous, ostiole a cleft or slit; mycelium often forming a thallus with algae.

**Family 27. HEMIHYSTERIACEAE**

9: 1094, 11: 385, 14: 707, 16: 653, 17: 892

Perithecia simple or aggregated into a stroma, dimidiate-scutate, subicle lacking,

or more or less developed, ostiole hystierium-like; asci 8-spored, spores usually 2-celled, dark.

### Phaeosporae

14: 707

- I. Spores dark, 1-celled; subicle lacking **Cyclostomella** 14: 707

### Phaeodidymae

9: 1094, 11: 385, 14: 708, 16: 653, 17: 892

Spores dark, 1-septate, elliptic to fusoid

- I. Perithecia on a subicle; stroma lacking **Morenoella** 9: 1094  
 II. Perithecia in a stroma  
 1. Asci with paraphyses **Parmularia** 14: 708  
 (Schneepia 9: 1097)  
 2. Asci without paraphyses **Hysterostomella** 9: 1098

### Hyalophragmiae

17: 892

- I. Spores hyaline, 3-several-septate **Parmulariella** 17: 892

## Family 28. HYSTERIACEAE

2: 721, 9: 1100, 11: 385, 14: 710, 16: 657, 17: 893

Perithecia simple or very rarely in a stroma, erumpent-superficial, horizontally, rarely vertically oblong or linear, membranous, coriaceous or carbonous, rarely carnosule at first, usually black, opening along the whole surface by a somewhat narrow cleft; asci usually paraphysate, 4-8-spored, rarely many-spored.

### Hyalosporae

2: 723, 9: 1100, 11: 385, 14: 710, 16: 657, 17: 893

Spores 1-celled, hyaline, globose to fusoid

- I. Asci 4-spored; spores covered with mucus **Hypodermella** 11: 385  
 II. Asci 8-spored  
 1. Perithecia single or at least not coalescing **Schizothyrium** 2: 723  
 (Henriquesia 2: 726)  
 2. Perithecia coalescing in stellate groups of 4-6 **Delpinoella** 16: 658

### Phaeosporae

2: 727, 9: 1100, 14: 710

Spores 1-celled, dark, globose to ovoid

- I. Asci 8-spored  
 1. Perithecia separate; asci paraphysate **Farlowiella** 2: 727, 9: 1100  
 2. Perithecia stromatic at base; asci aparaphysate **Erikssonia** 14: 710  
 II. Asci 10-12-spored **Lembosiella** 9: 1101

**Hyalodidymae**

2: 727, 9: 1101, 11: 386, 14: 711, 16: 659, 17: 895

Spores 1-septate, hyaline, ovoid to fusoid

**I. Perithecia membranous**

1. Perithecia separate, minute **Aulographum 2: 727**
2. Perithecia in a dimidiate stroma **Cycloschizum 17: 896**

**II. Perithecia carbonous**

1. Perithecia separate
  - a. Perithecia simple or scarcely branched **Glonium 2: 731**
  - (1) Asci 8-spored **\*Pleoglonis 9: 1103**
  - (2) Asci many-spored
  - b. Perithecia radiately branched, or stellate

2. Perithecia connected in orbicular sori **Actidium 2: 738**
- Synglonium 14: 711**

**III. Perithecia at first somewhat fleshy, reddish or yellow****Angelinia 2: 739****Phaeodidymae**

2: 740, 9: 1103, 11: 387, 14: 711, 16: 659, 17: 897

Spores 1-septate, dark, ovoid to oblong

**I. Perithecia on a fibrillose-radiate subicle****Lembosia 2: 741****II. Perithecia without a subicle**

1. Perithecia coriaceous **Tryblidium 2: 740**

**2. Perithecia carbonous**

- a. Perithecia linear; cleft very narrow, straight **Bulliardiella 17: 902**

- b. Perithecia scutellate; cleft subcircular

**Dielsiella 17: 902****Hyalophragmiae**

2: 765, 9: 1112, 11: 388, 14: 715, 16: 664, 17: 903

Spores several-septate, hyaline, oblong to cylindric

**I. Perithecia saprogenous**

1. Perithecia carbonous, cleft narrow **Gloniella 2: 765**
2. Perithecia subcoriaceous, cleft wide **Pseudographis 2: 769**

**II. Perithecia biogenous, gregarious in spots**

1. Perithecia corticole **Dichaena 2: 771**

**2. Perithecia foliicole**

- a. Perithecia merely gregarious **Phragmographium 17: 906**
- b. Perithecia radiately disposed **Aldona 16: 667**

**Phaeophragmiae**

2: 743, 9: 1108, 11: 387, 14: 715, 16: 664, 17: 907

Spores several-septate, dark, oblong to cylindric

**I. Edges of cleft somewhat obtuse, then more or less distant****1. Asci 4-8-spored**

- a. Perithecia transversely densely and coarsely sulcate

**Rhytidhysterium 2: 759**

## b. Perithecia smooth

## (1) Perithecia covered by the epidermis

**Hypodermopsis** 17: 908

## (2) Perithecia erumpent or superficial

## (a) Perithecia carbonous

**Hysterium** 2: 743

## (b) Perithecia coriaceous

**Tryblidiella** 2: 757

## 2. Asci many-spored, perithecia subcoriaceous

**Baggea** 2: 760

## II. Edges of cleft very thin, closely connivent

## 1. Asci 4-spored; perithecia subcarbonous, striate

**Ostreium** 2: 765

## 2. Asci 8-spored; perithecia somewhat membranous, fragile

**Mytilidium** 2: 760**Hyalodictyae**

2: 772, 9: 1116, 11: 389, 14: 717, 16: 668, 17: 909

Spores muriform, hyaline, ovoid to oblong

## I. Perithecia separate

## 1. Perithecia carbonous, erumpent; spores without mucus

**Gloniopsis** 2: 772

## 2. Perithecia membranous, innate; spores with mucus sheath

**Hysteropsis** 9: 1118

## II. Perithecia in a lenticular, radiate stroma

**Mendogia** 16: 669**Phaeodictyae**

2: 776, 9: 1119, 11: 389, 14: 717, 16: 668, 17: 912

Spores muriform, dark, ovoid to oblong

## I. Perithecia carbonous or corneo-carbonous, firm

**Hysterographium** 2: 776

## II. Perithecia membranous, thin

**Graphyllum** 16: 1145, 17: 913**Scolecosporae**

2: 784, 9: 1123, 11: 389, 14: 719, 16: 669, 17: 913

Spores bacillar to filiform, hyaline or dark

## I. Spores 2-5 times shorter than the asci; perithecia membranous

**Hypoderma** 2: 784

## II. Spores filiform, nearly as long as the asci

## 1. Perithecia horizontally elongate, rarely ampulliform

## a. Perithecia elongate

## (1) Perithecia membranous, applanate

**Lophodermium** 2: 791

## (2) Perithecia subcarbonous, conchiform

**Lophium** 2: 799

## (3) Perithecia subcoriaceous, depressed

## (a) Perithecia subcorneous

**Sporomega** 2: 801

## (b) Perithecia subcarnose

**Colpoma** 2: 803

## b. Perithecia subspheroid or ampulliform

## (1) Perithecia depressed spheroid, cleft longitudinal

**Ostropa** 2: 804

- (2) Perithecia horizontally ampulliform, ostiole roundish  
**Robergea** 2:806
- 2. Perithecia vertically elongate, cylindric; cleft obsolete
  - a. Spores breaking apart into cells **Microstelium** 16:672
  - b. Spores not breaking apart **Acrospermum** 2:807  
(**Schizacrospermum** 16:672)

### Family 29. GRAPHIDACEAE

ZÄHLBRUCKNER 87

Mycelium parasitic on yellow green algae, forming a crustose, foliose or fruticose thallus, the latter often immersed, or thallus lacking, and parasitic on lichens or on bark; perithecia single or cespitose or united in a stroma, typically oblong to elongate with a cleft-like opening, more rarely disk-shaped and with an irregular often stellate opening, more or less carbonous.

#### I. Perithecia separate

- 1. Thallus lacking, parasitic on lichens or on bark  
**Subfamily Arthoniae** 89, R. 414
  - a. Parasitic on lichens
    - 1. Spores 1-celled **Phacopsis** R. 419
    - 2. Spores 2-celled **Conida** R. 420
    - 3. Spores 4-6-celled **Celidium** R. 425
  - b. On bark
    - 1. Spores 2-celled **Lecideopsis** R. 432
    - 2. Spores 2-several-septate **Arthonia** R. 435
    - 3. Spores muriform **Arthothelium** R. 438
- 2. Thallus present, crustose, or uniform
  - a. Perithecia without an exciple, i. e., not margined  
**Subfamily Arthoniae** 89
    - (1) Algae *Palmella* or *Protococcus*; spores colorless
      - (a) Spores 1-septate **Allarthonia** 91
      - (b) Spores several-septate **\*Plearthonis** 91
      - (c) Spores muriform **Allarthothelium** 241
    - (2) Algae *Chroolepus*
      - (a) Spores transeptate
        - x. Spores colorless
          - (x) Spores 1-septate **\*Diarthonis** 91
          - (y) Spores 2-several-septate **Arthonia** 89
        - y. Spores brown **Gymnographa** 94
      - (b) Spores muriform **Arthothelium** 91
    - (3) Algae *Phyllactidium*
      - (a) Spores 1-septate **\*Merarthonis** 91
      - (b) Spores 2-several-septate **Arthoniopsis** 91
  - b. Perithecia margined with a distinct proper exciple  
**Subfamily Graphidae** 92
    - (1) Thallus without cortex
      - (a) Algae *Palmella*
        - x. Perithecia with a single hymenium
          - (x) Spores colorless
          - m. Spores 1-celled

- (m) Hypothecium clear or brownish  
**Xylographa** 93
- (n) Hypothecium black, carbonous  
**Lithographa** 93  
**Aulaxina** 94
- n. Spores transeptate
- (y) Spores dark  
m. Spores transeptate **Encephalographa** 94  
n. Spores finally muriform **Xyloschistes** 94
- y. Perithecia with 2-4 parallel hymenia  
(x) Spores 1-celled **Ptychographa** 94  
(y) Spores transeptate **Diplogramma** 94
- (b) Algae *Chroolepus*  
x. Asci many-spored; spores filiform  
**Spirographa** 96
- y. Asci 1-8-spored  
(x) Spores clear  
m. Spores transeptate  
(m) Paraphyses simple and not united  
r. Ends of paraphyses little thickened, smooth  
(r) Spores 1-septate **\*Digraphis** 98  
(s) Spores 2-several-septate  
**Graphis** 96  
s. Ends clavate and warted or spiny  
**\*Psorographis** 102
- (n) Paraphyses branched and united  
**Opegrapha** 94
- n. Spores muriform  
(m) Paraphyses simple and not united  
r. Ends of paraphyses not thickened, smooth  
**Graphina** 99  
s. Ends of paraphyses clavate, warted or spiny  
**†Acanthothecis** 101  
(not *Acanthothecium* Speg.)
- (n) Paraphyses branched and united  
**Helminthocarpum** 102  
(incl. *Dictyographa* 96)
- (y) Spores dark  
m. Spores 1-septate **Melaspilea** 96  
n. Spores 2-several-septate **Phaeographis** 99  
o. Spores muriform **Phaeographina** 100
- (c) Algae *Phyllactidium*: spores transeptate  
x. Spores clear; paraphyses branched and united  
**Opegraphella** 102  
y. Spores dark; paraphyses simple and free  
**Micrographa** 102
- (2) Thallus with a cortex: algae *Chroolepus*  
**Subfamily Dirinae** 105
- (a) Spores elliptic to fusoid, 4-8-celled, clear  
**Dirina** 106

- (b) Spores similar but brown **Dirinastrum 106**
- 3. Thallus present, fruticose, erect **Subfamily Roccellae 106**
  - a. Hyphae of cortex parallel with thallus surface
    - (1) Perithecia elongate, furrowed; spores clear, 8-9-celled **Ingaderia 107**
    - (2) Perithecia round
      - (a) Hypothecium black; spores clear
        - x. Exciple with algae **Dendrographa 107**
        - y. Exciple without algae **Roccellaria 107**
      - (b) Hypothecium clear; spores brown, spiny **Darbishirella 108**
  - b. Hyphae perpendicular to surface
    - (1) Perithecia elongate, furrowed
      - (a) Perithecia immersed; hypothecium clear **Roccellographa 108**
      - (b) Perithecia superficial; hypothecium black **Reinkella 108**
    - (2) Perithecia round
      - (a) Spores clear; perithecia entire
        - x. Hypothecium black
          - (x) Thallus mostly crustose, slightly fruticose **Roccellina 108**
          - (y) Thallus distinctly fruticose **Roccella 109**
        - y. Hypothecium clear
          - (x) Algae present below the hypothecium **Pentagenella 110**
          - (y) No algae below the hypothecium **Combea 109**
      - (b) Spores brown or brownish; perithecia deeply lobed
        - x. Medulla clear throughout **Schizopelte 110**
        - y. Inner medullary layer black **Simonyella 110**
- II. Perithecia in a stroma, mostly immersed **Subfamily Chiodectae 102**
  - I. Algae *Chroolepus*
    - a. Paraphyses simple and free
      - (1) Spores transeptate
        - (a) Spores clear **Glyphis 103**
        - (b) Spores brown **Sarcographa 103**
      - (2) Spores muriform
        - (a) Spores clear **Enterodictyum 104**
        - (b) Spores brown **Sarcographina 103**
    - b. Paraphyses branched and reticulately united
      - (1) Spores transeptate
        - (a) Spores colorless **Chiodectum 104**
        - (b) Spores brown or dark
          - x. Perithecia margined **Sclerophytum 105**
          - y. Perithecia marginless **Synarthonia 91**
      - (2) Spores muriform
        - (a) Spores clear **Minksia 241**



- (b) Spores brown **Enterostigma** 105
2. Algae *Phyllactidium*
- a. Spores 2-celled; paraphyses simple and free **Pycnographa** 105
- b. Spores many-celled; paraphyses branched and united **Mazosia** 105

### Order 10. PEZIZALES

Mycelium various, but typically inconspicuous or invisible; propagaton by conidia, but usually not in evidence; reproductive body or apothecium at first closed and more or less globose, rarely elongate, then opening more or less completely into a cup, saucer or disk, waxy or fleshy, more rarely carbonous, leathery or gelatinous; asci typically 8-spored and paraphysate; spores various.

### Family 30. PHACIDIACEAE

REHM 60

Apothecia sunken, more or less erumpent, disk-like or elongate, single or grouped, leathery or carbonous, black, firm, opening by lobes or by a rift; hypothecium poorly developed as a rule.

#### **Hyalosporae**

8:705, 11:431, 10:48, 14:813, 16:783, 18:155

Spores hyaline, 1-celled, globose to oblong

- I. Apothecia concrete above with the epiderm
1. Apothecia and epiderm splitting radiately **Phacidium** 8:709
2. Apothecia and epiderm splitting circumscissilely **Stegia** 8:733
3. Apothecia and epiderm splitting irregularly **Cryptomyces** 8:707
- II. Apothecia and epiderm little or not at all concrete **Pseudophacidium** R. 94

#### **Phaeosporae**

14:814

Spores dark, 1-celled, oblong

- I. Apothecia superficial, membranous, lacinate **Phaeophacidium** 14:814

#### **Hyalodidymae**

Spores hyaline, 1-septate, elliptic to oblong

- I. Apothecia scutellate or oblong, lacinate **Schizothyrium** R. 75  
(incl. *Rhagadolobium* 14:816)

#### **Phaeodidymae**

Spores dark, 1-septate, elliptic to oblong

- I. Apothecia in black foliicole spots **Cocconia** 8:738

## II. Apothecia stellately erumpent through epiderm

**Metadothella** 18: 162

## III. Apothecia and epiderm concrete, laciniate

**Keithia** 10: 49**Phragmosporae**

8: 740

Spores typically hyaline, 2-several-septate, ovoid to oblong

## I. Apothecia and epiderm concrete, laciniate

**Sphaeropezia** 8: 740, R. 72

## II. Apothecia and epiderm not concrete, splitting irregularly

**Pseudographis** R. 90**Dictyosporae**

8: 764, 16: 790

Spores muriform, typically hyaline, ovoid to oblong

## I. Apothecia round to oblong, splitting irregularly; aparaphysate

**Dothiora** 8: 764, R. 108**Scolecosporae**

8: 744, 10: 51, 11: 432, 14: 817, 16: 789, 18: 163

Spores bacillar to filiform, typically hyaline, continuous or septate

## I. Apothecia and epiderm concrete

## 1. Apothecia in black foliicole stroma-like spots

**Rhytisma** 8: 752, R. 82(incl. **Duplicaria** 8: 764)

## 2. Apothecia not in stroma-like spots

## a. Apothecia and epiderm laciniate

**Coccomyces** 8: 744, R. 76

## b. Apothecia and epiderm operculately circumscissile

**Moutoniella** 18: 163

## II. Apothecia and epiderm not concrete

## 1. Apothecia round, laciniate

**Coccophacidium** R. 97

## 2. Apothecia oblong to elongate, hysterioid

**Clithris** 18: 165, R. 101**Family 31. STICTIDACEAE**

REHM 112

Apothecia sunken, finally more or less erumpent, round or elongate, single or grouped, typically waxy, rarely membranous or leathery, white or bright-colored, at least never black, splitting the epiderm laciniately or irregularly, hypothecium little developed.

**Subfamily Eustictidae**

REHM 113

Apothecia waxy, not deeply sunken, finally opening widely, and exposing the hymenium.

**Hyalosporae**

8:648, 10:44, 11:428, 14:806, 16:776, 18:146

Spores hyaline, 1-celled, globose to oblong

**I. Spores globose**

- 1. Asci 8-spored **Lindauella** 16:777
- 2. Asci many-spored **Flaminia** 16:777

**II. Spores elliptic to oblong**

- 1. Paraphyses long-pointed, much longer than the asci **Stegia** 8:733, R. 155
- 2. Paraphyses blunt, swollen or branched
  - a. Paraphyses thread-shaped or forked
    - (1) Apothecia round
      - (a) Apothecia blackish; ascus pore blue with iodine **Trochila** 8:728, R. 127
      - (b) Apothecia bright-colored
        - x. Ascus pore blue with iodine
        - (x) Paraphyses forked, enlarged and colored above **Ocellaria** 8:654, R. 133
        - (y) Paraphyses little if at all enlarged or colored **\*Habrostictis** R. 137
    - y. Ascus pore not blue with iodine **Naevia** 8:658, R. 145
  - (2) Apothecia oblong or elongate
    - (a) Hymenium blue with iodine **Xylographa** 8:664, R. 153
    - (b) Hymenium not blue with iodine **Briardia** 16:776, R. 151
- b. Paraphyses irregularly branched
  - (1) Asci 8-spored **Propolis** 8:648, R. 141
  - (2) Asci many-spored **Propolina** 8:654

**Phaeosporae**Spores 1-celled, dark, oblong **Stictopacidium** R. 1215**Didymosporae**

8:666, 10:45, 11:428, 14:808, 16:778, 18:147

Spores 1-septate, typically hyaline or bright-colored, oblong

**I. Paraphyses lacking** **Coccopeziza** 10:45**II. Paraphyses present**

- 1. Spores blue or green **Ploettnera** 16:778
- 2. Spores hyaline
  - a. Spores with 1-2 cilia at each end; hysterioid **Iridionia** 16:788
  - b. Spores muticate
    - (1) Paraphyses filiform or forked
      - (a) Apothecia round
        - x. Asci not blue with iodine **\*Naeviella** R. 164
        - y. Asci blue with iodine
        - (x) Ascus pore alone blue with iodine **Diplonaevia** 8:666, R. 161
        - (y) Whole hymenium blue with iodine **\*Diplocryptis** R. 158

- (b) Apothecia rounded, with flexuose clefts

**Lauterbachella** 16:788

- (2) Paraphyses irregularly branched

- (a) Apothecia round; not blue with iodine

**Propolidium** 8:667

- (b) Apothecia elongate; ascus pore blue with iodine

**\*Xyloglyphis** R. 170

### **Phragmosporae**

8:669, 10:46, 11:429, 14:808, 16:778, 18:148

Spores 2-several-septate, hyaline, rarely darkish, oblong to elongate

- I. Spores somewhat fuscous

**Eupropolis** 8:676

(incl. **Janseella** 16:780)

- II. Spores hyaline

1. Paraphyses filiform or forked

- a. Asci not blue with iodine

**\*Merostictis** R. 164

- b. Asci blue with iodine

- (1) Ascus pore alone blue with iodine

**Phragmonaevia** 8:674, R. 160

- (2) Whole hymenium blue with iodine

**Cryptodiscus** 8:669, R. 158

2. Paraphyses branched; apothecia elongate

**Xylogramma** 8:677, R. 169

### **Dictyosporae**

8:704, 11:431, 14:812, 16:782, 18:151

Spores muriform, typically hyaline, ovoid to oblong

- I. Asci 1-spored

**Pleostictis** 8:703

- II. Asci 8-spored

1. Apothecia oblong, hysterioid

**Melittiosporium** 8:704, R. 172

2. Apothecia round

- a. Apothecia urceolate

**Platysticta** 8:703

- b. Apothecia disk-like

**Delpontia** 18:151

### **Scolecosporae**

8:681, 10:46, 11:429, 14:810, 16:781, 18:152

Spores bacillar or filiform, typically hyaline

- I. Asci 8-spored

1. Apothecia pilose

**Lasiostictis** 8:696

2. Apothecia not pilose

**Schizoxylum** 8:697, R. 181

- a. Spore cells separating

- b. Spore cells not separating

- (1) Paraphyses filiform or nearly so; asci cylindric

**Stictis** 8:681, R. 175

(incl. **Karstenia** 8:702, **Cerion** 18:154)

- (2) Paraphyses much branched; asci clavate

**Naemacyclus** 8:701, R. 173

- II. Asci many-spored

**Carestiella** 14:810

**Subfamily Ostropae**

REHM 185

Apothecia membranous or leathery, deeply sunken, the scarcely opened tip alone erumpent.

- I. Spores 1-celled, elliptic; asci clavate **Laquearia** R. 187
- II. Spores many-celled, filiform; asci cylindric
  - 1. Apothecia cask-shaped, partly erumpent **Ostropa** R. 188
  - 2. Apothecia with only the thick ostiole erumpent **Robergea** R. 189

**Family 32. TRYBLIDIACEAE**

REHM 191

Apothecia sunken, then erumpent, often lobed, brown or black, membranous or horny; hypothecium well-developed, thick.

- I. Apothecia scattered
  - 1. Spores 1-septate
    - a. Spores with a mucose covering **\*Tryblidis** R. 194
    - b. Spores without a mucose covering **Heterosphaeria** R. 198
  - 2. Spores 2-several-septate
    - a. Spores with a mucose covering **Tryblidiopsis** R. 193
    - b. Spores without a mucose covering **Odontotrema** R. 204
  - 3. Spores muriform **Tryblidium** R. 196
  - 4. Spores filiform **\*Odontura** R. 207
- II. Apothecia caespitose or stromate; spores bacillar or filiform **Scleroderris** R. 208

**Family 33. DERMATEACEAE**

REHM 241

Apothecia sunken, then erumpent, cup-shaped to oblong, single or grouped, waxy, leathery or horny, mostly brownish or black; hypothecium more or less developed.

**Hyalosporae**

8: 547, 10: 36, 11: 422, 14: 794, 16: 762, 18: 121

Spores hyaline, 1-celled, globose to oblong

- I. Apothecia large, usually stalked or radicate at base
  - 1. Apothecia ear-shaped, more or less vertical, leathery
    - a. Spores ovoid to oblong **Midotis** 8: 547
    - b. Spores globose **Midotiopsis** 18: 121
  - 2. Apothecia urceolate or turbinate
    - a. Apothecia stalked; exciple and hypothecium prosenchymatic **Urnula** 8: 548
    - b. Apothecia stalked; exciple and hypothecium parenchymatic **Choriactis** 18: 121
    - c. Apothecia sessile, hairy; exciple parenchymatic, hypothecium prosenchymatic **Scytopezis** 18: 122
- II. Apothecia small, sessile or nearly so

## 1. Asci 8-spored

a. Apothecia more or less corky

**Dermatea** 8: 550, R. 246

b. Apothecia coriaceous to subcorneous

**Cenangium** 8: 556, R. 219(incl. *Ameghiniella* 8: 584, *Ephe-  
lina* 8: 585)

## 2. Asci many-spored, or 8-spored and many-spored

**Tympanis** 8: 578, R. 264**Phaeosporae**

16: 764, 18: 127

Spores dark, 1-celled, oblong

I. Apothecia coriaceous, erumpent

**Phaeangium** 16: 764**Hyalodidymae**

8: 587, 10: 37, 11: 424, 14: 798, 18: 127

Spores hyaline, 1-septate, elliptic to oblong

I. Apothecia patellate, coriaceous to corneous

**Cenangella** 8: 587

II. Apothecia elongate, cleft, subcorneous

**Angelinia** 18: 129**Phaeodidymae**

18: 128

Spores dark, 1-septate, elliptic to oblong

I. Apothecia patellate, coriaceous

**Phaeangella** 18: 128**Hyalophragmiae**

8: 594, 16: 765, 18: 129

Spores hyaline, 2-several-septate, elliptic to fusoid

I. Apothecia waxy-membranous, pilose, urceolate

**Crumenula** 8: 600, R. 235**Phaeophragmiae**

2: 757, R. 233

Spores dark, 2-several-septate, elliptic to fusoid

I. Apothecia hysterioid, cleft, coriaceous

**Tryblidiella** R. 233**Scolecosporae**

8: 601, 10: 37, 11: 425, 18: 130

Spores filiform, hyaline or subhyaline

I. Apothecia urceolate to cup-shaped, subcoriaceous

**Godronia** 8: 601, R. 237

II. Apothecia clavate, stipe corneous, disk submucose

**Crinula** 8: 606**Family 34. BULGARIACEAE**

REHM 444

Apothecia mostly superficial, cup-shaped to disk-shaped, usually smooth, gelatinous-fleshy or gelatinous-waxy, horn-like when dry; hypothecium gelatinous, more or less developed.

**Hyalosporae**

4: 609, 10: 38, 11: 425, 14: 801, 16: 766, 18: 131

Spores hyaline, 1-celled, globose to oblong

**I. Spores globose****Pulparia 8: 612****II. Spores elliptic to bacillar****1. Apothecia in a lens-shaped gelatinous stroma****Physmatomyces 16: 770****2. Apothecia not in a stroma****a. Exciple lacking****(1) Asci 8-spored****(a) Apothecia microscopic, margined by changed paraphyses****Gloeopeziza 10: 41****(b) Apothecia larger; paraphyses not modified****Agyrium 8: 634, R. 450****\*Agyrina 8: 636****(2) Asci 16-spored****b. Exciple present****(1) Lichenicole****Ahlesia 8: 633****(2) Not lichenicole****(a) Apothecia stipitate****Ombrophila 8: 613, R. 475****(incl. Stamnaria 8: 620, R. 465)****(b) Apothecia sessile****x. Asci 8-spored****(x) Apothecia smooth outside****m. Apothecia with an even disk****Orbilis 8: 621, R. 453****(incl. Bulgariopsis 18: 135)****n. Apothecia with a much folded disk****Haematomyces 8: 633****(y) Apothecia veined or roughened outside****m. Apothecia 1-2 cm. wide****Gloeocalyx 18: 132****n. Apothecia 2-9 cm. wide****Sarcosoma 10: 42, R. 497****y. Asci many-spored****\*Myridium 8: 631****Phaeosporae**

8: 636, 10: 41, 14: 804, 16: 770, 18: 140

Spores dark, 1-celled, elliptic to fusoid

**I. Apothecia turbinate, substipitate, closed at first, large****Bulgaria 8: 636, R. 494****II. Apothecia disciform, sessile, open at first, smaller****Bulgariella 8: 638****Hyalodidymae**

8: 639, 10: 42, 11: 427, 14: 805, 16: 771, 18: 142

Spores hyaline or subhyaline, 1-septate, elliptic to fusoid

**I. Parasitic, urn-shaped; paraphyses forming an epithecium****Paryphedria 10: 43, R. 484****II. Saprophytic, disciform; epithecium lacking****Calloria 8: 639, R. 462**

**Phaeodidymae**

10: 42, 16: 771, 18: 142

Spores brown, 1-septate, elliptic to fusoid

- I. Apothecia subturbinate, sessile **Sorokinia** 10: 42

**Phragmosporae**

8: 641, 10: 43, 11: 427, 16: 773, 18: 143

Spores typically hyaline, 2-several-septate, fusoid

- I. Apothecia turbinate to disciform **Coryne** 8: 641, R. 485

**Hyalodictyae**

18: 145

Spores hyaline, muriform, ovoid

- I. Apothecia cupulate to plane **Dictyonina** 18: 144

**Phaeodictyae**

8: 646, 10: 44, 18: 144

Spores dark, muriform, ovoid to oblong

- I. Hymenium sinuate-gyrose, not margined **Haematomyxa** 8: 646  
 II. Hymenium smooth, acute-margined **Sarcomyces** 10: 44

**Scolecosporae**

8: 646, 14: 805, 16: 775, 18: 145

Spores filiform, typically hyaline

- I. Apothecia without an exciple **Agyriopsis** 14: 805  
 II. Exciple present  
   1. Apothecia dark or black; spores medium **Holwaya** 8: 646  
   2. Apothecia gray or bright-colored; spores very long **Ophiogloea** 18: 145

**Family 35. PATELLARIACEAE**

REHM 277

Apothecia mostly superficial, cupulate to disk-shaped, more rarely boat-shaped or oblong, usually dark or black, carbonous, leathery, corneous or waxy; hypothecium typically well-developed.

**Hyalosporae**

8: 769, 10: 52, 11: 433, 14: 818, 16: 791, 18: 165

Spores hyaline, 1-celled, globose to oblong

- I. Asci many-spored  
   1. Spores globose **Biatorella** 8: 469, R. 303  
   2. Spores allantoid **Biatorellina** 18: 172  
 II. Asci 8-spored  
   1. Apothecia oblong to elongate, cleft **Placographa** R. 313  
   2. Apothecia round  
     a. Parasitic on lichen thalli  
       (1) Exciple present **Rhymbocarpus** 14: 819



- (2) Exciple lacking **Nesolechia** 10: 53, R. 315
- b. Saprophytic
  - (1) Paraphyses branched, forming an epithecium
    - (a) Asci club-shaped
      - x. Subicle absent **Patinella** 8: 769, R. 310
      - y. Subicle present, radiate **Actinoscypha** 8: 774
    - (b) Asci cylindric **Starbaeckia** 10: 53
  - (2) Paraphyses simple; epithecium none **Psilotheceum** 18: 168

**Phaeosporae**

10: 55

Spores dark, 1-celled, globose to elliptic

- I. Apothecia patellate, margined, black **Lagerheimia** 10: 55

**Hyalodidymae**

8: 779, 10: 56, 11: 434, 14: 820, 16: 792, 18: 173

Spores hyaline, 1-septate, elliptic to fusoid

- I. Parasitic on lichen thalli **Scutula** R. 321
- II. Not lichenicole
  - 1. Apothecia smooth, saprophytic **Patellea** 8: 783, R. 283
  - 2. Apothecia setose, parasitic on leaves **Johansonia** 8: 785

**Phaeodidymae**

8: 779, 10: 56, 11: 434, 14: 820, 16: 792, 18: 173

Spores dark, 1-septate, elliptic to fusoid

- I. Asci 8-spored
  - 1. Apothecia on a foliicole radiate subicle **Woodiella** 16: 794
  - 2. Apothecia not on a subicle
    - a. Apothecia round
      - (1) Apothecia superficial
        - (a) Saprophytic **Karschia** 8: 779, R. 345
        - (b) Parasitic on lichens \***Epilichen** 18: 177, R. 350
      - (2) Apothecia sunken, then erumpent
        - (a) Parasitic on lichens **Abrothallus** 8: 739, R. 358
        - (b) Saprophytic **Caldesia** R. 289
    - b. Apothecia elliptic to linear
      - (1) Apothecia irregularly elliptic or oblong
        - Melaspilea** 10: 58, R. 362
      - (2) Apothecia boat-shaped to linear **Hysteropatella** R. 367
- II. Asci 16-spored **Ravenelula** 8: 782
- III. Asci many-spored \***Pleospilis** 18: 179

**Hyalophragmiae**

8: 786, 10: 59, 11: 434, 14: 821, 16: 795, 18: 179

Spores hyaline, 2-several-septate, elliptic to fusoid

- I. Parasitic on lichens **Mycobilimbia** 10: 60, R. 327
- II. Saprophytic

- |                               |                           |
|-------------------------------|---------------------------|
| 1. Apothecia twisted when dry | Durella 8: 790, R. 286    |
| 2. Apothecia not contorted    | Patellaria R. 329         |
|                               | (incl. Lecanidion 8: 795) |

**Phaeophragmiae**

8: 786, 10: 59, 11: 434, 14: 821, 16: 795, 18: 179  
 Spores dark, 2-several-septate, elliptic to fusoid

**I. Asci 8-spored**

- |   |                                 |
|---|---------------------------------|
| 1. Margin of cup involute, densely costate-rugose | Rhytidopeziza 10: 65            |
| 2. Margin not costate-rugose                      |                                 |
| a. Apothecia erumpent                             | Pseudotryblidium 10: 65, R. 370 |
| b. Apothecia superficial                          |                                 |
| (1) Parasitic typically on lichens                |                                 |
| (a) Apothecia round                               | Leciographa 10: 61, R. 372      |
| (b) Apothecia elliptic to elongate                | *Lecoglyphis R. 380             |
| (2) Saprophytic                                   | *Mycolecis, R. 372, 10: 61      |

**II. Asci many-spored****Dictyosporae**

8: 802, 11: 435, 14: 823, 18: 185

Spores hyaline or subhyaline, muriform, ovoid to oblong

- |  |                     |
|--|---------------------|
| I. Apothecia laciniate, depressed-spheroid | Blitrydium 8: 802   |
| II. Apothecia not laciniate, patellate     | Tryblidaria 18: 186 |

**Scolecosporae**

8: 807, 10: 65, 11: 435, 14: 823, 16: 798

Spores hyaline or subhyaline, bacillar to filiform

- |                                    |                            |
|------------------------------------|----------------------------|
| I. Spores separating at the joints | Bactrospora 10: 67, R. 344 |
| II. Spores not separating          |                            |
| 1. Apothecia sessile               |                            |
| a. Parasitic                       | Mycobacidia 10: 66, R. 337 |
| b. Saprophytic                     | Pragmopara R. 339          |
|                                    | (incl. Scutularia 8: 807)  |
| 2. Apothecia stalked, turbinate    |                            |
| a. Parasitic                       | *Parathalle R. 343         |
| b. Saprophytic                     | Lahmia 10: 65, R. 341      |

**Family 36. CALICIACEAE**

REHM 388, ZAHLBRUCKNER 80

Mycelium inconspicuous and saprophytic, or parasitic on algae, forming a powdery, crustose, foliose or fruticose thallus; apothecia sessile or stalked, cup- to top-shaped, opening more or less completely, asci disappearing very early and the disk then covered with a persistent mass of spores and paraphyses, i. e., mazaedium; exciple prosenchymatic, horny, proper or thalline.

- |   |
|---|
| I. Mycelium saprophytic, at least not forming a thallus |
| 1. Spores 1-celled, globose or globoid                  |

- a. Spores clear or merely yellowish
  - (1) Algae present but not forming a thallus  
*Farriolla* 83
  - (2) Algae lacking
    - (a) Asci long and slender stalked, ovoid above  
*Caliciopsis* R. 388
    - (b) Asci cylindric  
*Roesleria* 8: 826, R. 396
- b. Spores dark
  - (1) Apothecia black, nearly sessile  
*Sphinctrina* 83, R. 389
  - (2) Apothecia bright-colored, with a slender stalk  
\**Eucyphelis* R. 392  
(*Cyphelium* Rehm)
- 2. Spores typically 2-several-celled
  - a. Spores 2-celled
    - (1) Apothecia sessile  
*Acolium* R. 398
    - (2) Apothecia with a slender stalk  
*Mycocalicium* R. 401
  - b. Spores 3-several-celled  
*Stenocybe* 82 R. 413
- II. Mycelium forming a thallus with algae
  - 1. Thallus crustose
    - a. Spores 1-celled, globose or globoid
      - (1) Asci 8-spored
        - (a) Spores dark; disk more or less flat
          - x. Apothecia stalked  
*Chaenotheca* 81
          - y. Apothecia sessile  
\**Holocyphis* 84
        - (b) Spores clear or yellowish; disk globose  
*Coniocybe* 82
      - (2) Asci many-spored  
*Tylophorella* 85
    - b. Spores 2-several-celled, transeptate or muriform
      - (1) Spores transeptate
        - (a) Spores 2-celled, dark or brown
          - x. Apothecia stalked
            - (x) Apothecia long-stalked  
*Calicium* 81
            - (y) Apothecia with short thick stalk  
*Pyrgidium* 83
          - y. Apothecia sessile
            - (x) Algae *Pleurococcus*  
*Cyphelium* 83
            - (y) Algae *Chroolepus*
        - m. Proper exciple alone present  
\**Dipyrgis* 84
        - n. Thalline exciple also present  
\**Ditylis* 84
      - (b) Spores 3-many-celled
        - x. Proper exciple alone present  
*Pyrgillus* 84
        - y. Thalline exciple also present  
*Tylophorum* 84
    - (2) Spores muriform  
*Pseudacolium* 84
  - 2. Thallus foliose
    - a. Thallus of horizontal scales with marginal apothecia  
*Calycidium* 85

- b. Horizontal scales sterile; apothecia on cylindric podetia  
**Tholurna 85**
- 3. Thallus fruticose
  - a. Thallus hollow; apothecia on the under side  
**Pleurocybe 85**
  - b. Thallus with solid medulla; apothecia terminal
    - (1) Apothecia without thalline covering, goblet-like  
**Acroscyphus 86**
    - (2) Apothecia enclosed in a globose thalline exciple, which finally opens irregularly at the top  
**Sphaerophorus 86**

### Family 37. CHRYSOTRICHACEAE

ZAHLEBRUCKNER 117, 127

Apothecia disk-form, margined, asci persistent; mazaedium lacking, thallus uniform, cobwebby, cottony or spongy, loose, without layers, algae *Palmella*, *Pleurococcus*, *Chroolepus* or *Cladophora*.

- I. Thallus with *Palmella* or *Pleurococcus*
  - 1. Spores 1-celled  
**Crocynia 242**
  - 2. Spores 2-4-celled  
**Chrysothrix 117**
- II. Thallus with *Chroolepus*; spores clear
  - 1. Spores 1-celled  
**\*Holocoenis 128**
  - 2. Spores 2-celled  
**Coenogonium 127**
- III. Thallus with *Cladophora*; apothecia lacking  
**Racodium 128**

### Family 38. COLLEMATACEAE

ZAHLEBRUCKNER 154, 158, 167, 168

Apothecia disk-form or pitcher-form, with persistent asci; thallus more or less gelatinous when moist, mostly without layers, always with blue-green algae, scaly, foliose or fruticose, rarely crustose.

- I. Algae *Gloeocapsa*, *Chroococcus* or *Xanthocapsa*; spores typically 1-celled, colorless  
**Subfamily Pyrenopsidae 158**
- 1. Algae *Gloeocapsa*
  - a. Thallus crustose, scaly or dwarf fruticose
    - (1) Spores 1-celled
      - (a) Asci 8-spored  
**Pyrenopsis 159**
      - (b) Asci 32-spored  
**\*Pleopyrenis 160**
    - (2) Spores 2-celled  
**Cryptothele 159**
  - b. Thallus foliose, of a single leaf; spores clear, 1-celled  
**Phylliscidium 160**
  - c. Thallus fruticose, with rhizoids; spores clear, 1-celled  
**Synalissa 160**
- 2. Algae *Chroococcus*
  - a. Thallus crustose; apothecia more or less open  
**Pyrenopsidium 160**
  - b. Thallus foliose, of one leaf, umbilicate; apothecia closed  
**Phylliscum 161**

3. Algae *Xanthocapsa*
  - a. *Thallus crustose*
    - (1) Spores 1-celled
      - (a) Hymenium covered with a mass of algae and hyphae  
**Gonohymenia 161**
      - (b) Hymenium without epithelial mass
        - x. *Thallus pseudoparenchymatic* at margin  
**Forssellia 161**
        - y. *Thallus* nowhere pseudoparenchymatic  
**Psorotichia 161**
    - (2) Spores 2-celled; apothecia closed  
**Collemopsidium 161**
  - b. *Thallus* of one leaf, umbilicate, often lobed
    - (1) *Thallus pseudoparenchymatic*  
**Anema 162**
    - (2) *Thallus* not pseudoparenchymatic
      - (a) Spores 1-celled
        - x. Hyphae loose, net-like at margin  
**Thyrea 162**
        - y. Hyphae perpendicular to the margin  
**Jenmania 162**  
**Paulia 163**
      - (b) Spores 2-celled  
**Paulia 163**
  - c. *Thallus* fruticose, branched, upright
    - (1) *Thallus* without layers
      - (a) Asci 8-spored  
**Peccania 163**
      - (b) Asci 12-many-spored  
**\*Pleoconis 164**
    - (2) *Thallus* layered, with a cortex  
**Phloeopeccania 164**
- II. *Thallus* with *Nostoc*; spores clear  
**Subfamily Collematae 168**
- i. Apothecia with proper exciple only, biatorin
  - a. Spores 1-celled
    - (1) Spores globose to fusoid, straight
      - (a) *Thallus* crustose, scarcely gelatinous  
**Leprocollema 170**
      - (b) *Thallus* scaly or dwarf fruticose, gelatinous  
**Leciophysma 170**  
**Koerberia 173**
    - (2) Spores needle-shaped, twisted  
**Koerberia 173**
  - b. Spores transeptate, 2-many-celled
    - (1) Spores 2-celled; *thallus* without cortex  
**Homothecium 171**
    - (2) Spores 4-8-celled; *thallus* with cortex  
**Arctomia 173**
2. Apothecia with thalline exciple, lecanorin
  - a. Spores 1-celled
    - (1) *Thallus* scaly or dwarf fruticose; spores thin-walled
      - (a) *Thallus* without cortex  
**Physma 170**
      - (b) *Thallus* with pseudoparenchymatic cortex  
**Lemmopsis 171**
    - (2) *Thallus* large-leaved; spores thick-walled or mucose  
**Dichodium 171**
  - b. Spores transeptate to muriform
    - (1) *Thallus* without cortex

- (a) Spores 2-celled **\*Dicollema 172**
    - (b) Spores transeptate, many-celled **Collema 171**
    - (c) Spores muriform **Blennothallia 172**
  - (2) Thallus with a pseudoparenchymatic cortex on one or both sides or pseudoparenchymatic throughout
    - (a) Spores transeptate, 3-many-celled **Leptogiopsis 175**
    - (b) Spores muriform **Leptogium 174**
- III. Thallus with Seytonema or Stigonema; spores colorless **Subfamily Ephebae 154**
- 1. Thallus crustose to scaly
    - a. Thallus uniform, not corticate
      - (1) Spores 1-celled **Pterygiopsis 157**
      - (2) Spores 4-celled **Petractis 124**
    - b. Thallus corticate above **Porocyphus 157**
  - 2. Thallus dwarf fruticose, much branched, dark
    - a. Apothecia sunken in swellings of the thallus
      - (1) Spores 1-celled; paraphyses present **Ephebeia 155**
      - (2) Spores 2-3-celled **Ephebe 155**
    - b. Apothecia superficial
      - (1) Thallus without pseudoparenchymatic cortex or central medulla
        - (a) Paraphyses capitate, septate **Spilonema 154**
        - (b) Paraphyses filiform, not septate **Thermutis 154**
      - (2) Thallus with large-celled pseudoparenchymatic cortex and central medulla
        - (a) Cortex of one row of cells; spores 2-celled **Leptodendriscum 155**
        - (b) Cortex of several rows
          - x. Spores 1-celled **Leptogidium 156**
          - y. Spores 2-celled **Polychidium 156**
- IV. Algae Rivularia; spores clear **Subfamily Lichinae 164**
- 1. Apothecia disk-form; thallus scaly to granular
    - a. Apothecia with proper exciple; algae horizontal **Pterygium 165**
    - b. Apothecia with thalline exciple; algae erect **Steinera 166**
  - 2. Apothecia almost perithecioid; thallus dwarf fruticose
    - a. Algae in the middle of the thallus and parallel with the long axis of the branches **Lichinodium 166**
    - b. Algae absent from the middle but marginal beneath the cortex
      - (1) Algae parallel with the long axis of the branches **Lichina 167**
      - (2) Algae perpendicular to the long axis
        - (a) Paraphyses present **Lichinella 166**
        - (b) Paraphyses absent **Homopsella 167**

**Family 39. PELTOPHORACEAE**

Zahlbruckner 122, 176, 190

Thallus firm, not at all gelatinous, crustose or foliose, more or less lobed and somewhat erect at the margin but never truly fruticose, typically attached to the substratum by rhizoids or by a navel, with a pseudoparenchymatic cortex on one or both sides or pseudoparenchymatic throughout; apothecia typically sunken in the thallus or grown together with it on the whole under side, more or less margined by the thallus, but a proper exciple lacking.

I. Thallus uniform to crustose; algae Protococcus, rarely Pleurococcus

**Subfamily Ectolechia 122**

1. Spores transeptate, usually 2-3-celled

a. Paraphyses not branched

(1) Paraphyses free; no algae below the hypothecium

**Asterothyrium 123**

(2) Paraphyses united; algae below the hypothecium

**Lecaniella 124**

b. Paraphyses branched and united

(1) Spores 2-celled

**Actinoplaca 124**

(2) Spores many-celled

**Tapellaria 243**

2. Spores muriform

a. Asci 1-spored; hypothecium without algae

(1) Paraphyses unbranched, free

**Lopadiopsis 123**

(2) Paraphyses branched, united

(a) Epithecium without algae

**Sporopodium 123**

(b) Epithecium with algae

**\*Gonothecis 123**

b. Asci 8-spored; hypothecium with algae below

**Arthotheliopsis 124**

II. Thallus foliose or foliose scaly, rarely subfruticose; algae typically bluegreen, rarely bright-green

1. Apothecia not marginal; thallus pseudoparenchymatic throughout

**Subfamily Heppiæ 176**

One genus, parasitic on *Scytonema*

**Heppia 177**

2. Apothecia typically marginal or even with the thallus; thallus layered

**Subfamily Peltophoræ 190**

a. Thallus foliose, usually large-leaved

(1) Apothecia on the upper side of the thallus

(a) Apothecia marginal on lobes of thallus; lower surface of thallus without cortex

x. Algae *Nostoc*

**†Peltophora 194**

(*Peltigera*)

y. Algae *Palmella* (*Dactylococcus*)

**\*Chloropeltis 194**

(b) Apothecia superficial; lower surface with cortex below the apothecia

x. Algae *Nostoc*

**Solorina 192**

y. Algae *Palmella*

**Solorinina 192**

(2) Apothecia on the under side of elongate thallus lobes; thallus completely corticate on both sides

x. Algae *Nostoc*

**Nephromium 194**

- y. Algae *Palmella* **Nephroma 193**
- b. Thallus minute, small triangular scales radiating from the apothecium
  - (1) Asci 8-spored; spores brownish, 4-6-celled **Asteristium 191**
  - (2) Asci many-spored; spores clear, 2-celled **Solorinella 192**

#### Family 40. LECIDEACEAE

ZAHLEBRUCKNER 114, 129, 138, 144

Thallus firm, not gelatinous, crustose, scaly or foliose, exceptionally dwarf fruticose, with rhizoids or a navel in the larger forms, with or without cortex; apothecia superficial or somewhat sunken at first, with a characteristic proper exciple, very rarely lacking, but without a thalline exciple. The absence of the latter distinguishes this family from the Parmeliaceae.

#### I. Thallus uniform or crustose

- 1. Algae *Chroolepus* or *Phyllactidium* **Subfamily Lecanactidae 114**
  - a. Proper exciple lacking, or rudimentary and lateral
    - (1) Spores transeptate; exciple mostly absent **Schismatomma 115**
    - (2) Spores muriform; exciple thin, complete **Melampyridium 116**
  - b. Proper exciple well-developed, carbonous
    - (1) Spores 2-celled **Arthoniactis 115**
    - (2) Spores 4-many-celled **Lecanactis 115**
    - (3) Spores needle-shaped **\*Scolecactis 115**
- 2. Algae *Pleurococcus* or *Palmella* **Subfamily Lecideae 129**
  - a. Thallus uniform-crustose, loose, without cortex; spores clear, fusoid, 4-celled **Pilocarpum 116**
  - b. Thallus typically crustose, firm
    - (1) Asci 1-8-spored, rarely 16-32-spored
      - (a) Spores 1-celled
        - x. Spores clear
          - (x) Asci 1-2-spored; spores large, thick-walled **Mycoblastus 133**
        - (y) Asci 8-spored
          - m. Exciple black, carbonous **Lecidea 130**
          - n. Exciple clear or colored, not carbonous **Biatora 132**
        - (z) Asci 16-32-spored **\*Pleolecis 132**
      - y. Spores brown **Orphniospora 133**
      - (b) Spores 2-celled
        - x. Spores clear
          - (x) Paraphyses simple
            - m. Spores thick-walled, large **Megalospora 134**
            - n. Spores thin-walled, small
              - (m) Thallus with cortex **\*Diphloeis 136**
              - (n) Thallus without cortex



- r. Exciple and hypothecium dark or black  
**Catillaria 133**
      - s. Exciple and hypothecium clear or bright  
**Biatorina 134**
    - (y) Paraphyses branched, in a slimy hymenium  
**\*Diphanis 138**
  - y. Spores brown; paraphyses branched  
**\*Diphaeis 138**
  - (c) Spores 4-many-celled
    - x. Spores elliptic to long-fusoid
      - (x) Thallus not corticate, crustose-uniform
        - m. Spores thin-walled **Bacidia 135**
        - n. Spores thick-walled **Bombyliospora 136**
      - (y) Thallus corticate, warty to scaly  
**Toninia 136**
    - y. Spores needle-shaped or filiform  
**†Scolecosporis 136**  
**(Scoliciosporum)**
  - (d) Spores muriform
    - x. Spores clear
      - (x) Spores with mucus covering; paraphyses branched  
**\*Phalodictyum 138**
      - (y) Spores without mucus cover; paraphyses simple  
**Lopadium 137**
    - y. Spores brown, mucose  
**Rhizocarpum 137**
  - (2) Asci many-spored
    - (a) Exciple bright-colored, soft **Biatorella 151**
    - (b) Exciple dark or black, hard **Sporostatia 152**
- II. Thallus scaly or foliose; algae *Pleurococcus* or *Palmella*  
**Subfamily Phyllopsorae 138**
- 1. Thallus scaly, with rhizoids; disk even
    - a. Spores 1-celled
      - (1) Hypothecium pseudoparenchymatic  
**Phyllopsora 138**
      - (2) Hypothecium not pseudoparenchymatic
        - (a) Exciple clear or bright **Psoromaria 183**
        - (b) Exciple dark or black **Psora 132**
    - b. Spores transeptate **Psorella 139**
  - 2. Thallus mostly with one large leaf; disk often furrowed  
**Subfamily Gyrophorae 147**
    - a. Spores 1-celled; disk furrowed in most of the species  
**Gyrophora 147**
    - b. Spores transeptate
      - (1) Spores 2-many-celled, colorless **\*Merophora 148**
      - (2) Spores 2-celled, brown **Dermaticum 149**
    - c. Spores muriform, dark **Umbilicaria 149**
- III. Thallus dwarf fruticose, of low erect slightly branched podetia, horizontal  
thallus lacking; spores clear, 2-celled **Sphaerophoropsis 133**

**Family 41. CLADONIACEAE**

ZAHLEBRUCKNER 139

Thallus of two kinds, one horizontal on the substratum, crustose, scaly to foliose, the other consisting of erect clubshaped, cupshaped or filiform, simple or branched podetia; algae typically *Pleurococcus*; apothecia terminal or lateral, mostly convex to globose, with proper exciple only, except in *Chlorocaulum*; spores colorless.

**I. Apothecia with proper exciple****1. Podetia short, simple, rarely forked; apothecia terminal****a. Podetia equal, not broadened above****(1) Podetia covering the surface****(a) Hypothecium clear****x. Spores 1-celled*****Baeomyces* 140****y. Spores transeptate****(x) Spores elliptic to rod-shaped****m. Spores 2-celled****\**Dibaeis* 140****n. Spores 4-celled****(m) Algae bluegreen****\**Cyanobaeis* 141****(n) Algae yellow-green*****Heteromyces* 141****(y) Spores filiform, many-celled*****Gomphyllus* 141****(b) Hypothecium dark; spores 1-celled*****Pilophorum* 142****(2) Podetia marginal on a foliose thallus*****Gymnoderma* 142****b. Podetia broadened above into lobes or tongues bearing the hymenium on one side****(1) No algae below the hymenium; medulla uniform*****Glossodium* 142****(2) Algae below the hymenium; medulla with thicker strands*****Thysanothecium* 142****2. Podetia funnellform, cupshaped or more or less branched, large****a. Spores 1-celled; podetia hollow*****Cladonia* 143****b. Spores 4-many-celled*****Stereocaulum* 146****c. Spores muriform*****Argopsis* 146****II. Apothecia with thalline exciple****\**Chlorocaulum* 146****Family 42. PARMELIACEAE**

ZAHLEBRUCKNER 118, 124, 150, 195, 199, 207, 216

Thallus of one kind, podetia lacking, firm, not gelatinous, crustose, scaly, foliose or fruticose, often with rhizoids, typically layered, algae typically yellow green, but bluegreen in two subfamilies; apothecia characterized by a thalline exciple, which is rarely lacking, superficial, rarely immersed

**I. Thallus typically crustose, sometimes scaly or lobed at the margin****1. Algae *Pleurococcus* or *Parmella*, rarely *Protococcus*****a. Asci 1-32-spored, mostly 8-spored****(1) Disk conspicuous, not perithecioid****Subfamily *Leonorae* 199****(a) Spores 1-celled**

- x. Asci 1-8-spored
  - (x) Paraphyses simple, free
    - m. Spores straight, elliptic to oblong
      - (m) Thallus bright yellow; pycnoconidia elliptic  
**Candelariella 207**
    - (n) Thallus rarely bright yellow; conidia filiform
      - r. Cortex not.pseudoparenchymatic  
**Lecanora 201**
      - s. Cortex pseudoparenchymatic  
**Psoroma 183**
  - n. Spores crescent to falcate  
**Harpidium 199**
  - (y) Paraphyses branched and united  
**Ochrolechia 203**
- y. Asci 12-many-spored  
**\*Myriolecis 202**
- (b) Spores 2-celled
  - x. Paraphyses simple, free
    - (x) Sterigmata exobasidial  
**Lecania 204**
    - (y) Sterigmata endobasidial  
**Icmadophila 204**  
(incl. *Placolecania 205*)
  - y. Paraphyses branched, united  
**Calenia 205**
- (c) Spores 4-many-celled
  - x. Apothecia superficial
    - (x) Asci 1-8-spored
      - m. Thallus with cortex  
**Haematomma 205**
      - n. Thallus without cortex
        - (m) Paraphyses forked; spores moniliform, 30-40-celled  
**Conotrema 121**
        - (n) Paraphyses simple; spores not moniliform, 8-30-celled  
**\*Adermatis 204**
    - (y) Asci 16-32-spored  
**\*Dyslecanis 204**
  - y. Apothecia immersed; thallus without cortex
    - (x) Paraphyses simple, free  
**Phlyctella 206**
    - (y) Paraphyses branched and united  
**Phlyctidia 206**
- (d) Spores muriform
  - x. Spores clear, at least not dark
    - (x) Apothecia superficial, broad  
**Myxodictyum 206**
    - (y) Apothecia immersed, small  
**Phlyctis 206**
  - y. Spores dark  
**Diploschistes 122**
- (2) Disk small, more or less closed and perithecioid; apothecia mostly sunk-  
en in warts  
**Subfamily Pertusariae 195**
- (a) Spores 1-celled
  - x. Paraphyses simple, free  
**Perforaria 195**
  - y. Paraphyses branched and united  
**Pertusaria 195**

- (b) Spores 2-celled; paraphyses branched and united  
**Varicellaria 198**
- b. Asci many-spored; spores 1-celled, more rarely 2-celled  
**Subfamily Acarosporae 150**
  - (1) Apothecia superficial
    - (a) Thallus bright yellow **\*Pleochroma 207**
    - (b) Thallus not bright yellow **Maronea 152**
  - (2) Apothecia typically immersed, with mostly narrow disk  
**Acarospora 152**
- 2. Algae *Chroolepus* or *Phyllactidium*; apothecia with thalline exciple, at least when young  
**Subfamily Gyalectae 124**  
(incl. *Thelotremae* 118)
  - a. Thalline exciple present and persistent
    - (1) Spores 1-celled **Jonaspis 125**
    - (2) Spores 2-celled **\*Ocellis 118**
    - (3) Spores 4-many-celled
      - (a) Spores clear
        - x. Apothecia sprouting repeatedly from the margin, forming erect forked chains of apothecia **Polystroma 121**
        - y. Apothecia not in chains
          - (x) Algae *Chroolepus*
            - m. Exciple and hypothecium clear  
**Ocellularia 118**
            - n. Exciple and hypothecium dark, hard  
**Sagiolechia 126**
          - (y) Algae *Phyllactidium* **Phyllophtharmaria 120**
      - (b) Spores brown **Phaeotrema 119**
    - (4) Spores muriform
      - (a) Spores clear
        - x. Paraphyses simple, free **Thelotrema 119**
        - y. Paraphyses branched and united  
**\*Phanotylum 121**
      - (b) Spores dark or brown
        - x. Paraphyses simple, free **Leptotrema 120**
        - y. Paraphyses branched and united
          - (x) Apothecia sunken in groups in a stroma  
**Tremotylum 120**
          - (y) Apothecia not in a stroma  
**Gyrostomum 120**
  - b. Thalline exciple present at first, then more or less completely disappearing
    - (1) Asci 1-8-spored
      - (a) Spores 2-celled **Microphiale 125**
      - (b) Spores 4-many-celled **Bryophagus 126**
      - (c) Spores muriform **Gyalecta 125**
    - (2) Asci 12-many-spored
      - (a) Spores 2-celled **Ramonia 125**
      - (b) Spores 6-many-celled **Pachyphiale 126**
- II. Thallus typically foliose or fruticose, sometimes small-leaved or scaly; thalline exciple sometimes lacking

- i. Algae *Pleurococcus*, *Protococcus*, *Palmella* or *Cystococcus*
  - a. Asci many-spored; apothecia cespitose on a one-leaved thallus  
**Glypholecia 153**
  - b. Asci 1-32-spored
    - (1) Thallus foliose, horizontal or upright, rarely fruticose, typically dorsiventral
      - (a) Thallus with cyphellae or pseudocyphellae or furnished with well-developed clubshaped cephalodia
      - x. Lower side of thallus with cyphellae or pseudocyphellae
        - (x) Apothecia with thalline exciple
          - m. Spores 2-celled
            - (m) Spores clear **\*Diphanosticta 189**
            - (n) Spores brown **\*Diphaeosticta 189**
          - n. Spores 4-many-celled
            - (m) Spores clear **\*Phanosticta 189**
            - (n) Spores brown **Sticta 188**
        - (y) Apothecia with proper exciple only  
**\*Dysticta 189**
      - y. Lower side of thallus without cyphellae or pseudocyphellae; thallus typically with cephalodia
        - (x) Algae *Protococcus* **Lobaria 185**
        - (y) Algae *Cystococcus*, i. e., in mucose colonies  
**\*Cystolobis 188**
    - (b) Thallus typically without cyphellae, pseudocyphellae, and cephalodia  
**Subfamily Parmeliae 207**
  - x. Asci 16-32-spored **Candelaria 209**
  - y. Asci 2-8-spored
    - (x) Cortex on both sides of thallus
      - m. Apothecia superficial
        - (m) Lower cortex more or less cellular, usually with rhizoids  
**Parmelia 211**  
**(incl. Parmeliopsis 209)**
        - (n) Lower cortex without rhizoids, spongy, of net-like hyphae  
**Anzia 213**
      - n. Apothecia marginal or terminal; thallus often fruticose
        - (m) Disks upright from the beginning  
**Cetraria 214**
        - (n) Disks on the under side of thallus lobes, later upright by the twisting of the lobes  
**Nephromopsis 216**
    - (y) Cortex on the upper side alone
      - m. Apothecia superficial; lower surface without cyphellae  
**Physcidia 209**
      - n. Apothecial terminal; cyphellae on lower side  
**Heterodea 208**
- (2) Thallus fruticose, erect or hanging, often long and hair-like; radial, rarely dorsiventral in structure **Subfamily Usneae 216**
- (a) Spores 1-celled or unknown

- x. Medulla traversed by varying solid strands  
**Letharia 218**
  - y. Medulla uniform without strands
    - (x) Cortex formed of hyphae running lengthwise
      - m. Spores clear; asci 8-spored  
**Bryopogon 219**
      - n. Spores brownish; asci 4-spored  
**Alectoria 219**
    - (y) Cortex of hyphae more or less perpendicular to the long axis, pseudoparenchymatic
      - m. Medulla of hyphae running lengthwise
        - (m) Medulla loose, not horny; apothecia unknown  
**Thamnolia 225**
        - (n) Medulla firm, horny
          - r. Thallus low, podetium-like; apothecia unknown  
**Siphula 225**
      - s. Thallus fruticose, elongate; apothecia known
        - (r) Thallus dorsiventral, without fibrous branches; medulla and cortex not separable  
**Everniopsis 218**
        - (s) Thallus radial, usually with fibrous branches; medulla and cortex readily separable  
**Usnea 223**
  - n. Medulla of hyphae running in all directions
    - (m) Thallus more or less hollow
      - r. Thallus swollen, tubular  
**Dactylina 218**
    - s. Thallus not swollen and tubular
      - (r) Thallus fruticose, erect  
**Dufourea 218**
      - (s) Thallus podetium-like; apothecia unknown  
**Endocena 226**
    - (n) Thallus flattened, not hollow, dorsiventral  
**Evernia 217**
- (b) Spores 2-celled  
**Ramalina 220**
- (c) Spores muriform, brown, large; asci 1-spored  
**Oropogon 220**
2. Algae bluegreen, Scytonema or Nostoc
  - a. Thallus large-leaved, with cyphellae, pseudocyphellae or cephalodia
    - (1) Lower side of thallus with cyphellae or pseudocyphellae
      - (a) Apothecia with thalline exciple
        - x. Spores clear, bacillar to acicular, 2-8-celled  
**\*Podostictina 189**
      - y. Spores brown
        - (x) Spores 2-celled  
**Stictina 189**
        - (y) Spores 4-celled  
**\*Merostictina 189**
    - (b) Apothecia with proper exciple only  
**\*Dystictina 190**

(2) Cyphellae or pseudocyphellae absent; cephalodia usually present

(a) Apothecia with thalline exciple

**\*Phycodiscis 188**

(b) Apothecia with proper exciple only

**Lobarina 188**

b. Thallus scaly to small-leafy, sometimes crustose, exceptionally large-leafy, without cyphellae, etc. **Subfamily Pannariae 178**

(1) Lower surface of thallus scarcely or not at all veined; spores 1-2-celled

(a) Upper cortex well-developed; distinct

x. Upper cortex with hyphae perpendicular to it

(x) Upper cortex hairy or pilose

**Erioderma 183**

(y) Upper cortex not hairy

m. Apothecia with thalline exciple

(m) Spores 1-celled; algae Nostoc

**Pannaria 181**

(n) Spores 2-celled; algae Scytonema

**Massalongia 183**

n. Apothecia with proper exciple only

(m) Spores 1-celled

**Parmeliella 181**

(n) Spores 2-many-celled

**Placynthium 181**

y. Upper cortex of horizontal hyphae

**Coccocarpia 184**

(b) Upper cortex indistinct; algae occupying nearly the whole width of the thallus

**Lepidocellema 180**

(2) Lower surface of thallus with distinct forked veins; spores 4-celled

**Hydrothyria 184**

### Family 43. PHYSICIACEAE

ZÄHLBRÜCKNER 226-234

Thallus crustose, foliose or fruticose, as in Parmeliaceae; apothecia mostly lecanorin, sometimes with proper exciple alone; spores normally 2-celled, with more or less thickened cross-wall, often traversed by a line-like canal, or exceptionally 1-many-celled or muriform

I. Spores 2-celled

1. Spores clear

a. Thallus without cortex, uniform or crustose

(1) Apothecia with thalline exciple

**Caloplaca 227**

(2) Apothecia with proper exciple only

**Blastenia 226**

b. Thallus with cortex, foliose or fruticose

(1) Thallus foliose, horizontal or ascending, dorsiventral, with rhizoids, cortex pseudoparenchymatic on both sides

**Xanthoria 229**

(2) Thallus fruticose, erect, radial, cortex of conglutinate longitudinal hyphae

**Theloschistes 230**

2. Spores dark or brown

a. Thallus without cortex, uniform or crustose

- (1) Apothecia with thalline exciple
  - (a) Asci 8-spored Rinodina 232
  - (b) Asci 12-24-spored \*Pleorinis 233
- (2) Apothecia with proper exciple only Buellia 231
- b. Thallus with cortex, foliose or fruticose
  - (1) Upper cortex of perpendicular hyphae, pseudoparenchymatic
    - (a) Apothecia with thalline exciple
      - x. Hypothecium clear Physcia 234
      - y. Hypothecium black Dirinaria 235
    - (b) Apothecia with proper exciple only Pyxine 234
  - (2) Upper cortex of hyphae parallel with the long axis, not pseudoparenchymatic; apothecia with proper exciple Anaptychia 236
- II. Spores 3-4-celled
  - i. Spores clear
    - a. Thallus without cortex, uniform or crustose
      - (1) Apothecia with thalline exciple \*Meroplacis 228
      - (2) Apothecia with proper exciple only Xanthocarpia 227
    - b. Thallus with cortex, fruticose Niorma 230
  - 2. Spores brown
    - a. Thallus without cortex, uniform or crustose
      - (1) Apothecia with thalline exciple \*Merorinis 233
      - (2) Apothecia with proper exciple alone Diplotomma 232
    - b. Thallus with cortex, foliose; exciple proper \*Phragmopyxine 234
- III. Spores muriform, brown
  - i. Thallus without cortex, uniform or crustose \*Dictyorinis 233
  - 2. Thallus with cortex, foliose Hyperphyscia 236

#### Family 44. MOLLISIACEAE

REHM 503

Apothecia superficial or erumpent, cupulate to disk-shaped, mostly smooth, rarely with hairs, typically soft-waxy; distinguished from all other families by the typically brownish exciple, which is entirely parenchymatic, or at least about the base.

#### Subfamily Eumollisiae

Apothecia superficial from the beginning

#### Hyalosporae

Spores hyaline, 1-celled, globose to elliptic

- I. Apothecia not on a subicle
  - 1. Spores globose Mollisiella 18: 64
  - 2. Spores elliptic to fusoid Mollisia R. 511, 8: 321



- II. Apothecia on a subicle **Tapesia** R. 573, 8: 371

### Hyalodidymae

Spores hyaline, 1-septate, elliptic to oblong

- I. Apothecia not on a subicle **Niptera** R. 549, 8: 480
- II. Apothecia on a subicle
1. Spores with a mucose covering **Stictoclypeolum** 18: 110
2. Spores not mucose
- a. Spores constricted, large,  $50 \times 25 \mu$  **Psorotheciopsis** 16: 746
- b. Spores not constricted, small,  $12 \times 5 \mu$  **Linhartia** 16: 744

### Hyalophragmiae

Spores hyaline, 2-several-septate, elliptic to fusoid

- I. Apothecia not on a subicle or thallus **Belonidium** R. 561, 8: 496
- II. Apothecia on a subicle or thallus
1. Spores ciliate at each end **Ciliella** 16: 748
2. Spores not ciliate
- a. Apothecia on a subicle of hyphal threads **Trichobelonium** R. 590, 16: 747
- b. Apothecia on a parenchymatic thallus **Pazschkea** 14: 788  
(incl. **Psorotheciella** 16: 746)

### Hyalodictyae

Spores hyaline, muriform, ovoid to oblong

- I. Subicle present; asci 1-4-spored; spores mucose **Melittosporis** 16: 751  
(**Melittosporiopsis**)

### Scolecosporae

Spores hyaline, filiform, usually septate

- I. Apothecia gregarious; subicle lacking **Belonopsis** R. 571, 16: 752

### Subfamily Pyrenopezizae

Apothecia at first covered, then erumpent and more or less superficial

### Hyalosporae

Spores hyaline, 1-celled, globose to oblong

- I. Apothecia bright-colored, on living leaves **Pseudopeziza** R. 596, 8: 723
- II. Apothecia dark-brown without, not on living leaves
1. Apothecia with bristles **Pirottaea** R. 636, 8: 386
2. Apothecia without bristles, but sometimes with projecting rows of cells
- a. Subicle lacking **Pyrenopeziza** R. 608, 8: 354
- b. Subicle present **\*Spilopezis** R. 620

### Phaeosporae

Spores dark or brownish, 1-celled, elliptic to oblong

## I. Apothecia leathery, bright-colored outside

*Velutaria* R. 645, 8: 488**Hyalodidymae**

Spores hyaline, 1-septate, elliptic to fusoid

## I. Apothecia scarcely erumpent, bright colored

*Fabraea* R. 599, 8: 735

## II. Apothecia nearly superficial, dark-brown without

\**Dibelonis* R. 638**Hyalophragmiae**

Spores hyaline, 2-several-septate, oblong to fusoid

## I. Apothecia at last superficial, more or less roughened

*Beloniella* R. 638**Family 45. HELOTIACEAE**

REHM 647

Apothecia mostly superficial, rarely erumpent or arising from a sclerotium, typically stalked, sometimes sessile, cupulate to disk-shaped, waxy; distinguished by an exciple which is completely prosenchymatic.

**Subfamily Helotiae**

Apothecia not hairy

**Hyalosporae**

Spores hyaline, 1-celled, globose to oblong

## I. Apothecia on a subicle

*Eriopeziza* R. 693

## II. Apothecia not on a subicle

## 1. Apothecia arising from a sclerotium, long-stalked

*Sclerotinia* R. 803, 8: 195

## 2. Apothecia not arising from a sclerotium

## a. Apothecia green, arising from a green substratum

*Chlorosplenium* R. 752, 8: 315

## b. Apothecia not on a green substratum

## (1) Apothecia margined by a row of triangular teeth

## (a) Apothecia stalked

*Cyathicula* R. 740, 8: 304

## (b) Apothecia sessile

\**Pezoloma*

## (2) Apothecia without teeth

## (a) Asci many-spored

*Comesia* 8: 468

## (b) Asci typically 8-spored

## x. Apothecia sessile

*Pezizella* R. 653, 8: 275

## y. Apothecia stalked

## (x) Ascus pore blue with iodine

*Helotium* R. 772, 8: 210(incl. *Ciboria* R. 754, 8: 201)

## (y) Ascus pore not blue with iodine

*Phialea* R. 708, 8: 251(incl. *Helotium* in part)

**Hyalodidymae**

Spores hyaline, 1-septate, elliptic to fusoid

- I. Apothecia typically sessile \*Eubelonis R. 685
- II. Apothecia stalked
  - 1. Stalk ridged or folded Lanzia 8: 479
  - 2. Stalk not ridged or folded Hymenoscypha R. 781

**Hyalophragmiae**

Spores hyaline, 2-several-septate, elliptic to fusoid

- I. Apothecia not toothed at margin
  - 1. Apothecia sessile Belonium R. 685, 8: 492
  - 2. Apothecia stalked
    - a. Subicle lacking
      - (1) Spores muticate
        - (a) Paraphyses colorless, epithecium lacking Belonioscypha R. 743
        - (b) Paraphyses colored, forming an epithecium Rutstroemia R. 763
      - (2) Spores 1-ciliate at each end \*Belospora R. 744, 8: 488
    - b. Subicle present Massea 18: 99
- II. Apothecia with a row of triangular teeth at margin
  - 1. Apothecia sessile \*Merodontis 18: 102
  - 2. Apothecia stalked Davincia 18: 101

**Scolecosporae**

Spores typically hyaline, filiform

- I. Apothecia sessile or merely narrowed below
  - 1. Apothecia smooth Gorgoniceps R. 690, 8: 504
  - 2. Apothecia hairy Arachnopeziza R. 698
- II. Apothecia stalked Pocillum R. 747, 8: 605

**Subfamily Dasyscyphae**

REHM 824

Apothecia hairy

**Hyalosporae**

Spores hyaline, 1-celled, globose to fusoid

- I. Spores globose Lachnellula R. 862, 8: 390
- II. Spores elliptic to fusoid
  - 1. Paraphyses lance-shaped, pointed
    - a. Apothecia sessile \*Dyslachnum R. 868, 888
    - b. Apothecia stalked Lachnum R. 870
  - 2. Paraphyses filiform, blunt
    - a. Apothecia divided above into 3-6 lobes, black Arenaea 18: 75
    - b. Apothecia entire, rarely black

- (1) Apothecia hairy with distinct bristles
  - (a) Hairs shining, clear, non-septate, nearly solid  
\**Phalothrix* R. 831
  - (b) Hairs dull, usually septate, hollow
    - x. Apothecia sessile \**Dasypezis* R. 829, 842
    - y. Apothecia stalked *Dasyscypha* R. 832, 8: 432
- (2) Apothecia villose with projecting hyphae  
*Hyphoscypha* 18: 87

### **Hyalodidymae**

Spores hyaline, 1-septate, elliptic to fusoid

- I. Spores at first 1-celled, but finally 2-celled  
*Lachnella* R. 853, 8: 391  
(incl. *Perrotia* 18: 90)

### **Hyalophragmiae**

Spores hyaline, 2-several-septate, oblong to fusoid

- I. Paraphyses lance-shaped, pointed *Erinella* R. 910, 8: 507
- II. Paraphyses bearing conidia at the tips *Diplocarpa* 18: 110

## **Family 46. PEZIZACEAE**

REHM 913

Apothecia typically terrestrial, erumpent or superficial, sessile or stalked, urn-shaped to disciform, smooth or hairy, fleshy or fleshy-waxy, rarely leathery; usually medium to large forms.

### **Subfamily Pezizae**

Apothecia smooth, i. e., without hairs

### **Hyalosporae**

Spores hyaline, 1-celled, globose to fusoid

- I. Asci not blue with iodine
  - 1. Apothecia cleft on one side, ear-like *Otidea* R. 1023, 8: 94
  - 2. Apothecia not ear-like
    - a. Spores globose
      - (1) Apothecia fleshy or fleshy-waxy
        - (a) Substipitate, parasitic *Pitya* R. 925, 8: 209
        - (b) Sessile, terrestrial *Detonia* R. 927, 1269, 8: 105  
(*Barlaea* 8: 111, *Otidella* 8: 99)
      - (2) Apothecia cartilaginous †*Peltophoromyces* 16: 720  
(*Peltigeromyces*)
    - b. Spores elliptic to fusoid
      - (1) Apothecia sessile
        - (a) Spores with reticulately thickened wall  
*Aleuria* R. 968
        - (b) Spores smooth or roughened
          - x. Apothecia not on a subicle *Humaria* R. 934, 8: 118

- y. Apothecia on a subicle **Pyronema** R. 962, 8: 107  
(incl. **Phycascus** 16: 709)
- (2) Apothecia stalked
  - (a) Stalk narrow, cylindric, mealy-rough, almost hairy  
**Macropodia** R. 984, 8: 158
  - (b) Stalk mostly short and wide, not mealy-rough
    - x. Stalk large and thick, deeply furrowed  
**Phleboscypus** R. 981, 18: 13  
(**Acetabula**)
  - y. Stalk even or slightly furrowed
    - (x) Apothecia persistently cup-shaped  
**Geopyxis** R. 971, 8: 63
    - (y) Apothecia finally open and flat  
**Discina** R. 976, 8: 99
- II. Asci blue with iodine
  - 1. Apothecia cleft on one side, ear-like **\*Iotidea** R. 1028
  - 2. Apothecia not ear-like  
**Plicariella** R. 993
    - a. Spores globose
    - b. Spores elliptic to fusoid
      - (1) Apothecia sessile
        - (a) Apothecia with a milky juice **Galactinia** 8: 106
        - (b) Apothecia without milky juice
          - x. Apothecia not on a subicle
            - (x) Apothecia leathery, black **Urnula** R. 999, 8: 548
            - (y) Apothecia fleshy, not black
              - m. Apothecia on the surface of the ground  
**Plicaria** R. 1000  
(**Pustularia** in part)
          - n. Apothecia large, sunken, lobed  
**Peziza** R. 1019, 8: 73 and 511  
(**Pustularia** in part)
  - y. Apothecia on a subicle **Melachroia** R. 997
  - (2) Apothecia with a long, slender stalk  
**Tarzetia** R. 1021

### **Phaeosporae**

Spores dark, 1-celled, globose to oblong

- I. Spores globose **Phaeopezia** 8: 471, R. 995
- II. Spores elliptic
  - 1. Apothecia sessile **Aleurina** 18: 88
  - 2. Apothecia stalked **\*Podaleuris** 18: 88

### **Subfamily Scutellinae**

Apothecia setose or hairy

### **Hyalosporae**

Spores hyaline, 1-celled, globose to fusoid

- I. Spores globose

1. Spores smooth
    - a. Cup dark or black, more or less strigose at base  
**Pseudoplectania** R. 1039, 8: 165
    - b. Cup bright-colored, hairy or setose  
**Sphaerospora** R. 1037, 8: 188
  2. Spores warted or reticulate; cups white-hairy  
**Pyronemella** R. 1038, 8: 194
- II. Spores elliptic to fusoid
1. Spores rostrate at base  
**Puttemansia** 18: 98
  2. Spores muticate
    - a. Apothecia sunken in the ground, opening by lobes  
**Sepultaria** R. 1075, 8: 166
    - b. Apothecia superficial
      - (1) Apothecia sessile
        - (a) Apothecia dark-hairy or ciliate
        - x. Apothecia uniformly dark-hairy  
**Pelodiscus** 16: 1147, 18: 35
        - y. Apothecia also with long cilia at the margin
          - (x) Paraphyses clavulate, blunt  
**Scutellinia** R. 1042, 8: 173  
(*Lachnea*)
          - (y) Paraphyses equal, brown, pointed  
**Desmazierella** R. 1041, 8: 386
      - (b) Apothecia bright-hairy or ciliate
        - x. Apothecia uniformly bright-hairy  
\***Leucopezis**
        - y. Apothecia with marginal cilia also  
**Neottiopezis** 8: 190, R. 1068
    - (2) Apothecia stalked
      - (a) Apothecia dark or black
        - x. Stalk long, slender, mealy  
**Macropodia** R. 984, 8: 158
        - y. Stalk short, thick with brown hairs and rhizoids  
**Plectania** 8: 163, R. 1070
      - (b) Apothecia and hairs bright-colored  
**Sarcoscypha** R. 1070, 8: 153  
(incl. **Trichoscypha** 8: 160, **Pilocratera** 18: 31)

### Phaeosporae

Spores hyaline, 1-celled, globose to fusoid

- I. Apothecia with a cylindric verrucose stalk  
**Phaeomacropus** 16: 740
- II. Apothecia sessile  
\***Trichaleuris** 18: 89

### Family 47. HELVELLACEAE

REHM 1134

Apothecia typically terrestrial, and stalked, sometimes sessile, club-shaped, conical or saddle-shaped, rarely flat, mostly smooth, fleshy, cartilaginous or rarely gelatinous; usually large forms.

**Subfamily Rhizinae**

Apothecia sessile, flat, arched or irregularly globose

- |   |  |
|---|--|
| I. Spores globose                               | <i>Sphaerosoma</i> R. 1140, 8: 56                                    |
| II. Spores elliptic or fusoid                   |  |
| 1. Spores elliptic, rounded at ends             | <i>Psilopezia</i> R. 1137, 8: 152<br>(incl. <i>Peltidium</i> 18: 11) |
| 2. Spores fusoid, pointed at the thickened ends | <i>Rhizina</i> R. 1138, 8: 57  |

**Subfamily Helvellae**

Apothecia stalked, cap- or saddle-shaped, or columnar

- |   |   |
|---|---|
| I. Hymenium ridged in both directions                   |   |
| 1. Ridged cap stalked                                   | <i>Morchella</i> R. 1200, 8: 8                                    |
| 2. Ridged cap sessile                                   | <i>Underwoodia</i> 10: 1  |
| II. Hymenium smooth, convolute or ridged longitudinally |   |
| 1. Hymenium saddle-like, more or less lobed             | <i>Helvella</i> R. 1179, 8: 17<br><i>Gyromitra</i> R. 1189, 8: 15 |
| 2. Hymenium globoid, convolute                          |   |
| 3. Hymenium cap- or bell-shaped, smooth or ridged       | <i>Verpa</i> R. 1195, 8: 29                                       |

**Subfamily Geoglossae**

Apothecia stalked, clavate or capitate

- |   |   |
|---|---|
| I. Hymenium distinct from stem, disciform or capitate               |   |
| 1. Spores 1-celled  | * <i>Haplocybe</i> R. 1168<br>(incl. <i>Moellerodiscus</i> 18: 8)       |
| 2. Spores 2-4-celled  |   |
| a. Apothecia gelatinous   | <i>Leotia</i> R. 1164, 8: 609   |
| b. Apothecia waxy or fleshy-waxy                                    | <i>Cudoniella</i> R. 1166, 8: 41  |
| 3. Spores filiform or acicular                                      |   |
| a. Apothecia fleshy, cap-shaped with involute margin                | <i>Cudonia</i> R. 1169, 8: 527<br>( <i>Leotiella</i> 16: 700)           |
| b. Apothecia waxy, button-shaped, solid                             | <i>Vibrissea</i> R. 1170, 8: 51   |
| II. Hymenium club-shaped, not distinct from stem or but slightly so |   |
| 1. Spores hyaline   |   |
| a. Spores 1-celled  |   |
| (1) Spores globose  | <i>Neolecta</i> 8: 40   |
| (2) Spores elliptic   | <i>Mitrula</i> R. 1146, 8: 32<br>( <i>Spragueola</i> 14: 742)           |
| b. Spores 2-4-celled, fusoid  |   |
| (1) Hymenium covering the whole club                                | <i>Microglossum</i> R. 1151, 8: 39<br><i>Hemiglossum</i> 10: 2          |
| (2) Hymenium on one side only                                       | <i>Spathularia</i> R. 1158, 8: 48<br>(incl. <i>Mitruliopsis</i> 18: 10) |
| c. Spores more or less filiform                                     |   |
| 2. Spores brown, clavate or cylindric, many-celled                  | <i>Geoglossum</i> R. 1153, 8: 42  |

**Family 48. ASCOBOLACEAE**

REHM 1078

Apothecia superficial, typically fimicole, scutellate to disciform, fleshy or waxy or gelatinous; asci mostly broad and clavate, projecting above the hymenium at maturity.

**Subfamily Ascophanae**

Spores colorless

**I. Hymenium within an exciple****1. Asci 4- or 8-spored****a. Spores globose**

(1) Asci 4-spored

**Boudierella 14: 792**

(2) Asci 8-spored

**Cubonia 8: 527****b. Spores elliptic to fusoid; asci 8-spored**

(1) Apothecia smooth

**Ascophanus R. 1085, 8: 528**

(2) Apothecia hairy or setose

(a) Spores smooth

**Lasiobolus R. 1096, 8: 536**

(b) Spores spiny

**Aphanascus 10: 35****2. Asci 16-many-spored****a. Asci many**

(1) Apothecia fimbriate with delicate hairs; asci 32-spored

**Streptotheca 10: 34**

(2) Apothecia not hairy; asci 16-many-spored

**Rhyparobius R. 1099****b. Ascus one****Thelebolus R. 1106****II. Hymenium without an exciple; asci many-spored****Zukalina R. 1108****Subfamily Ascobolae**

Spores colored

**I. Spores globose****Boudiera R. 1113, 8: 512****II. Spores elliptic to fusoid****1. Spores in a gelatinous mass in ascus****Saccobolus R. 1115, 8: 524****2. Spores free in the ascus****a. Apothecia smooth**

(1) Exciple present, normal

**Ascobolus R. 1120, 8: 514**

(2) Exciple lacking

**Ascodesmis 8: 824****b. Apothecia hairy or ciliate****Dasybolus 11: 421****Family 49. CORDIERITACEAE**

8: 810, 16: 803

Apothecia suberose or corneo-carbonous, superficial, ramose-stipitate, arising at the tips of the branches, finally cup-like and open; asci terete-clavate, 6-8-spored; spores 1- or 2-celled, mostly hyaline.

**I. Spores 1-celled, hyaline; stipe much branched above, horny-carbonous****Cordierites 8: 810**



II. Spores 2-celled; stipe fascicled-ramose, suberose

**Acrosocyphus 8:811**

### Order 11. GYMNASCALES

Apothecia imperfect, more or less effuse or obsolete, maculiform, byssoid or dot-like, exciple absent; asci mostly free, often single, 1-many-spored, rarely with paraphyses.

#### Family 50. EXASCACEAE

8:811, 10:67, 11:435, 14:823, 16:803, 18:196

Asci parallel and crowded, sessile or enlarged at base; parasitic in living plants and deforming the part attacked as a rule.

I. Asci few-spored, usually 8-spored

- |  |                       |
|--|-----------------------|
| 1. Spores 1-celled, more or less globose | <b>Exascus 8:816</b>  |
| 2. Spores 2-3-septate, oblong            | <b>Elsinoe 16:804</b> |

II. Asci many-spored

- |                              |                          |
|------------------------------|--------------------------|
| 1. Asci more or less globose | <b>Taphridium 18:203</b> |
| 2. Asci terete-clavate       | <b>Taphrina 8:812</b>    |

#### Family 51. GYMNASCACEAE

8:820, 10:70, 11:437, 14:824, 16:805, 18:194

(incl. Ascoidaceae, Ascocortiaceae, Endomycetaceae, Protomycetaceae)

Asci more or less solitary or grouped in masses of mycelium; for the most part saprophytic.

I. Saprogenous

- |                    |                          |
|--------------------|--------------------------|
| 1. Asci 1-2-spored | <b>Bargellinia 8:823</b> |
|--------------------|--------------------------|

2. Asci 3-8-spored

a. Spores globose or nearly so

- |                            |                          |
|----------------------------|--------------------------|
| (1) Spores brown or violet | <b>Amaurascus 11:438</b> |
|----------------------------|--------------------------|

(2) Spores hyaline or golden

- |                     |                           |
|---------------------|---------------------------|
| (a) Asci 3-5-spored | <b>Conidiascus 16:807</b> |
|---------------------|---------------------------|

(b) Asci 8-spored

x. Asci surrounded by serrate spiral hyphae

**Ctenomyces 8:824**

y. Asci without serrate spiral hyphae

(x) Asci solitary

m. Asci acrogenous

**Eremascus 8:822**

n. Asci intercalary

**Oleina 8:822**

(y) Asci grouped or congested in masses

**Gymnascus 8:823**

(incl. Arachniotus 11:438)

b. Spores elliptic, hyaline; asci vertical, clavate

**Ascocorticium 10:71**

3. Asci many-spored

a. Spores globose

- |                                  |                          |
|----------------------------------|--------------------------|
| (1) Asci elongate, split at base | <b>Dipodascus 11:439</b> |
|----------------------------------|--------------------------|

(2) Asci terete-clavate, simple at base	<b>Ascoidea 10:71</b>
---	-----------------------

- b. Spores elliptic †*Ascodes* 16:807  
(*Oscarbrefeldia*)
- II. Biogenous
1. Asci 4-8-spored
- a. Asci 4-spored, solitary; on fungi *Endomyces* 8:821
- b. Asci 8-spored
- (1) Spores 1-celled
- (a) Hyphae of palmiform haustoria; on fungi *Podocapsa* 8:820
- (b) Hyphae filamentous; on animals *Eidamella* 16:805  
*Nostocotheca* 16:806
- (2) Spores muriform; on leaves
2. Asci many-spored
- a. Mycelium present *Eremothecium* 8:821
- b. Mycelium none
- (1) Haustoria present; on fungi \**Podocapsium* 8:820
- (2) Haustoria absent; mostly on flowering plants *Protomyces* 7:319

### Family 52. SACCHAROMYCETACEAE

8:916, 11:457, 14:828, 16:818, 18:198

True hyphae lacking, unicellular, propagating by buds; asci spurious?, globose to elliptic, mostly 1-4-spored; growing typically in sugary or starchy liquids or materials.

- I. Cells increasing by fission *Schizosaccharomyces* 18:201
- II. Cells increasing by budding
1. Spores pileiform or limoniform, costate *Willia* 18:198
2. Spores globose to irregular
- a. Vegetative cells conjugating *Zygosaccharomyces* 18:198
- b. Vegetative cells normal *Saccharomyces* 18:198

## Order 12. TUBERALES

Ascoma or apothecium typically more or less globose, and indehiscent, with one to many hollows, locules or veins, fleshy, waxy, leathery or even subcarbonous, saprophytic or parasitic, usually subterranean; asci present, 1-many-spored.

### Family 53. CYTTARIACEAE

8:4, 16:695, 18:1

Ascomata globose or obovate, firm fleshy, subcorneous when dry, stuffed or hollow, loculiferous at the periphery, producing tubercular swellings on the branches of living trees; locules globose, large, dehiscing by lobes, filled with asci and paraphyses; asci cylindric 8-spored; spores hyaline.

- I. Ascoma globose or obovate; all locules bearing asci *Cyttaria* 8:4

- II. Ascoma turbinate, fenestrate below; asci on a definite disk  
*Rickiella* 18: 1

**Family 54. PHYMATOSPHAERIACEAE**  
 (incl. MYRIANGIACEAE)

8: 843, 11: 440, 16: 799, 18: 191

Ascomata verruciform, small, waxy, membranous or subcarbonous, superficial, densely loculiferous within; locules with a single ascus, indehiscent; asci globose or short clavate, 8-spored.

**Hyalosporae**

Spores hyaline, 1-celled, ovoid to elliptic

- I. Ascomata globose-depressed, membranous *Phillipsiella* 8: 844

**Phaeosporae**

Spores dark, 1-celled, elliptic to fusoid

- I. Spores angulose, verrucose; fimicole *Guillermundia* 18: 191

**Hyalodidymae**

Spores hyaline, 1-septate, elliptic to fusoid

- I. Ascomata dark, globose-depressed *Microphyma* 8: 844  
 II. Ascomata bright-colored, applanate *Leptophyma* 8: 844

**Hyalophragmiae**

Spores hyaline, 2-several-septate, oblong to fusoid

- I. Ascomata elongate, rugose *Eurytheca* 8: 846  
 II. Ascomata punctiform to obconic  
   I. Ascomata punctiform or applanate  
     a. Ascomata punctiform; asci clavate *Harknessiella* 8: 845  
     b. Ascomata applanate-disciform; asci ovoid to globose  
        *Myriangium* 16: 800  
        (incl. *Myriangella* 18: 192)  
   2. Ascomata hemispheric or obconic; asci globose  
        *Molleriella* 8: 845

**Phaeophragmiae**

Spores dark, 2-several-septate, oblong to fusoid

- I. Ascomata blood-red, membranous-waxy *Kusanoa* 16: 800

**Hyalodictyae**

Spores hyaline, muriform

- I. Ascomata bright-colored  
   1. Ascomata on a radiate subicle *Phymatosphaeria* 8: 847  
   2. Ascomata not on a subicle *Ascomycetella* 8: 846  
 II. Ascomata dark or black *Trichophyma* 18: 194

## Phaeodictyae

Spores dark, muriform

- I. Ascomata applanate-tuberculiform, black      Cookella 8:846

## Family 55. ONYGENACEAE

8:861, 10:80, 11:440, 16:807

Ascomata subglobose, sessile or stipitate, membranous, fragile, epizoic; gleba waxy, then pulverulent; asci 8-spored, globose, evanescent; spores continuous, subhyaline.

A single genus

Onygena 8: 861

## Family 56. ELAPHOMYCETACEAE

(incl. CENOCOCCACEAE)

8:863, 10:80, 11:441

Ascomata hypogaeal, woody, crustose or carbonous, more or less globose, indurated, finally producing a powdery spore mass or gleba; asci 1-8-spored, sometimes spurious.

- I. Gleba interwoven with silky threads; asci normal  
**Elaphomyces** 8:863
- II. Gleba without capillitium; asci spurious, cell-shaped  
**Cenococcum** 8:871

## Family 57. TUBERACEAE

(incl. ENDOGONACEAE, EOTERFEZIACEAE)

8: 872, 10: 80, 11: 442, 14: 826, 16: 808, 18: 205

Ascomata hypogaeal, rarely epigaeal or parasitic, fleshy or waxy hardened, more or less globose, indehiscent; gleba never becoming a powdery mass, typically veined or lacunose, rarely continuous; asci 1-8-spored, rarely spurious.

## Hyalosporae

Spores hyaline, 1-celled, globose to elliptic

- 1. Gleba without veins, but with one or more cavities
  - 1. Asci linear or elongate
    - a. Spores verrucose or roughened
      - (1) Spores globose Pseudogenea 16:808
      - (2) Spores ovoid to elliptic Genea 8:873
    - b. Spores smooth
      - (1) Gleba with a single large cavity Hydnocystis 8:876
      - (2) Gleba convolute lacunose
        - (a) Densely lanate; canals not produced to surface Geopora 8:877
        - (b) Not lanate; canals produced to surface Pseudohydnotria 16:808
  - 2. Asci globose to oblong
    - a. Spores roughened or alveolate, globose

- (1) Asci 2-4-spored; spores with recurved spines  
**Terfeziopsis 16:816**
- (2) Asci 8-spored
- x. Hollows or canals not reaching the surface
- (x) Gleba with irregular stellate hollows  
**Myrmecocystis 16:809**
- (y) Microscopic; gleba central, lax  
**Lilliputia 16:816**
- y. Hollows or canals reaching the surface  
**Hydnobolites 8:879**
- b. Spores smooth
- (1) Gleba of numerous locules; epigaeal, parasitic on fungi  
**Eoterfezia 18:205**
- (2) Hypogaeal
- (a) Ascoma brown villous  
**Phaeangium 11:442**
- (b) Ascoma not villous  
**Balsamia 8:877**
- II. Gleba with veins, solid or also lacunose
1. Veins of two colors; spores globose, smooth  
**Stephensia 8:880**
2. Veins all of one color
- a. Spores globose, roughened
- (1) Gleba with distinct veins; asci mostly 2-3-spored  
**Delastria 8:904**
- (2) Gleba marbled with brown spots; asci 3-4-spored  
**Piersonia 16:812**
- b. Spores ellipsoid, smooth
- (1) Spores apiculate at each end, limoniform  
**Leucangium 8:899**
- (2) Spores not apiculate
- (a) Asci 8-spored, broadly stipitate  
**Tirmania 11:444**
- (b) Asci 6-8-spored, not stipitate  
**Picoa 8:899**
- Phaeosporae**
- Spores dark, 1-celled
- I. Gleba without veins; typically with hollows or canals
1. Spores globose, roughened
- a. Asci linear or cylindric
- (1) Gleba with one or more hollows  
**Cyrocratera 16:815**  
(incl. *Cryptica* 10:82)
- (2) Gleba homogeneous, lax  
**Ruhlandiella 17:241**
- b. Asci broad, oblong  
**Hydnotrya 8:879**
2. Spores ovoid, smooth  
**Genabea 8:878**
- II. Gleba with veins
1. Veins of two colors
- a. Some veins white  
**Pachyphloeus 8:881**
- b. No veins white  
**Tuber 8:882**
2. Veins of one color

- a. Asci elongate; gleba not divided into masses

**Choeromyces 8:900**

- b. Asci ovate to globose; gleba divided into masses

**Terfezia 8:902**

### Order 13. UREDINALES

Apothecia reduced to a mass of persistent or evanescent asci, waxy, leathery, gelatinous or powdery; parasites.

### Family 58. UREDINACEAE

7:528, 9:291, 11:174, 14:269, 16:257, 17:244

Parasitic; apothecia reduced to a mass of asci with fixed spore cells, i. e., teleutospores with 1 or more cells; conidia normally present, produced in cluster cups (aecidia, aecia), sori (uredinia), or spermagonia (pycnia); the asci and conidia may occur on the same host or upon different hosts, or one or the other alone may occur; teleutospores producing a promycelium and sporidioles upon germination.

#### Amerosporae

Teleutospores 1-celled, colored, rarely hyaline, or absent

#### I. Teleutospores present

##### 1. Teleutospores hyaline

- a. Teleutospores catenate

**Monosporidium 9:297**

- b. Teleutospores single

**Zaghouania 17:268**

##### 2. Teleutospores colored

- a. Spore mass or sorus horizontal

##### (1) Teleutospores catenate

- (a) Spores in a pseudoperidium

**Dietelia 14:291**

- (b) Spores not in a pseudoperidium

**Clastopsora 17:263**

##### (2) Teleutospores not catenate

- (a) Uredospores not in a pseudoperidium

- x. Spores half smooth, half roughened

**Hemileia 7:585**

- y. Spore cells alike smooth or rough

- (x) Teleutospores on a stalk

**Uromyces 7:531**

- (y) Teleutospores not stalked

- m. Teleutospores connate in a lentiform layer

**†Uromycodes 14:290**

(**Schroeteriaster**)

- n. Teleutospores not connate

**Chaonia 14:290**

- (b) Uredospores in a pseudoperidium

- x. Teleutospore sorus determinate, black or dark-brown

**Melampsora 7:586**

(incl. **Phacopsora 14:289**)

- y. Teleutospore sorus indeterminate, pale or reddish

**Melampsorella 7:596**

(incl. **Hyalopsora 17:258**)

- b. Spore mass or sorus with a cylindric columella, more or less vertical, globose to cylindric

- (1) Teleutospores mucose; uredospores lacking  
**Masseella 14: 292**
- (2) Teleutospores not mucose; uredospores present
  - (a) Uredospores in a pseudoperidium  
**Cronartium 7: 597**
  - (b) Uredospores not in a pseudoperidium  
**Skierka 16: 271**
- II. Teleutospores absent; pycnia, aecia or uredinia only
  - I. Spores in a pseudoperidium or cup
    - a. Spores in pycnia  
**Aecidiolum 7: 773**
    - b. Spores in aecia
      - (1) Aecia cup-shaped, usually dentate or crenate at margin  
**Aecidium 7: 774**
      - (2) Aecia cylindric, margin fimbriate  
**Roestelia 7: 833**
      - (3) Aecia irregular, more or less globose
        - (a) Spores catenate; on conifers  
**Peridermium 7: 835**
        - (b) Spores free; not on conifers  
**Pericladium 7: 838**
  - 2. Spores not in a pseudoperidium; uredinia
    - a. Spores single  
**Uredo 7: 838**
    - b. Spores catenate  
**Caeoma 7: 863**

### Didymosporae

Teleutospores 2-celled, colored or hyaline

- I. Teleutospores absent; aecia alone present  
**Aecidiella 14: 389**
- II. Teleutospores present
  - I. Sori horizontal
    - a. Teleutospores catenate, in a pseudoperidium  
**†Didymosira 11: 205**  
**(Puccinosira)**
  - b. Teleutospores single
    - (1) Teleutospores not in a pseudoperidium
      - (a) Teleutospores subpenicillate at each end  
**Dasyscypha 9: 313**
      - (b) Teleutospores not penicillate
        - x. Pedicel of spore with a hyaline gelatinous sheath  
**†Coleoma 9: 313**  
**(Coleopuccinia)**
    - y. Pedicel without gelatinous sheath
      - (x) Teleutospores longitudinally 1-septate  
**Diorchidium 7: 736**
      - (y) Teleutospores transversely 1-septate
        - m. Teleutospores with a hyaline integument  
**Uropyxis 7: 735**
      - n. Teleutospores without hyaline integument

(m) Spore cells with germination pores

**Puccinia 7: 600**

(inc. **Trichopsora**, **Chrysopsora**

**11: 206**, **Gymnoconia 14: 360**)

(n) Spore cells without germination pores

**Leptinia 14: 358**

(2) Teleutospores in a pseudoperidium

**Schizospora 14: 361**

2. Sori vertical

a. Teleutospores confluent into a gelatinous stratum

**Gymnosporangium 7: 737**

b. Teleutospores closely joined in a columella

(1) Spores catenate

**Gambleola 16: 314**

(2) Spores not catenate

**Didymopsora 16: 315**

### **Phragmosporae**

Teleutospores 2-several-septate

I. Teleutospores not in a pseudoperidium

1. Teleutospores transversely septate

a. Teleutospores catenate

†**Phragmostele 16: 321**

b. Teleutospores not catenate

(**Pucciniostele**)

(1) Uredospores not catenate

(a) Teleutospores cylindric; cells separating with difficulty

**Phragmidium 7: 742**

(incl. **Phragmopyxis 14: 361**, **Rostrupia**, **Barclayella 9: 316**)

(b) Teleutospores moniliform; cells separating easily

**Xenodochus 7: 750**

(2) Uredospores catenate, at least at first

(a) Wall of teleutospore thick; promycelium simple with a single sporidiale at apex

**Coleosporium 7: 751**

(incl. **Stichopsora 16: 318**)

(b) Wall of teleutospore thin; promycelium 3-septate, with a sporidiale at each cell

**Chrysomyxa 7: 759**

2. Teleutospores longitudinally or obliquely septate

a. Teleutospores developed within the host cells

(1) Uredospores in a pseudoperidium; homoeocious

**Thecopsora 7: 764**

(2) Uredospores lacking; heteroeocious

**Calyptospora 7: 766**

b. Teleutospores developed outside the host cells

**Pucciniastrum 7: 762**

II. Teleutospores in a pseudoperidium

1. Teleutospores catenate, verrucose

**Endophyllum 7: 767**

2. Teleutospores not catenate, echinulate

**Milesia 7: 768**

(incl. **Uredinopsis 17: 269**)



**Dictyosporae**

Teleutospores septate in two directions, or muriform

- I. Teleutospores more or less radiately 3-septate
  - Triphragmium** 7: 768  
(incl. **Hapalophragmium** 16: 1121)
- II. Teleutospores radiately 4-many-septate or muriform
  - Ravenelia** 7: 770  
(incl. **Sphaerophragmium** 11: 209,  
**Alveolaria** 11: 212, **Hemileiopsis** 16: 269, **Anthomyces** 16: 325,  
**Pleoravenelia** and **Neoravenelia**, 17: 407)

**Family 59. USTILAGINACEAE**

7: 449, 9: 282, 11: 230, 14: 410, 16: 367, 17: 472

Mycelium growing widely through parts of living plants, chiefly flowers and fruits, finally disappearing, leaving the mass of spores; spores producing upon germination a promycelium upon which sporidioles are borne.

**Amerosporae**

Spores 1-celled

- I. Sori without a fungal involucre
  - 1. Sporidioles typically pleurogenous on the promycelium
    - a. Spores arising from a compact subgelatinous stroma
      - Cintractia** 7: 480
    - b. Spores not arising from a compact subgelatinous stroma
      - Ustilago** 7: 451  
(incl. **Anthracoidea** 14: 420)
  - 2. Sporidioles many, acrogenous, crowning the promycelium
    - a. Sori powdery at maturity
      - (1) Sporidioles many, in a capitulum **Neovossia** 16: 375
      - (2) Sporidioles not in a capitulum **Tilletia** 7: 481
    - b. Sori not powdery at maturity
      - (1) Spores catenate, then separating **Sirentyloma** 14: 425
      - (2) Spores not catenate
        - (a) Spores rostrate **Rhamphospora** 9: 287
        - (b) Spores not rostrate
    - x. In stems and leaves
      - (x) Sori pustulate, pale or rust-brown
        - Entyloma** 7: 487
      - (y) Sori explanate, widely expanded, black
        - Melanotaenium** 7: 496
    - y. In roots
      - (x) Spores conglobate in spheroid cysts
        - Oedomycetes** 11: 234
      - (y) Spores not conglobate
        - Entorrhiza** 7: 497

- z. In ovaries †*Ustilaginula* 7: 498  
(*Ustilagopsis*)
- II. Sori with a fungal involucre
  - 1. Spores in a powdery mass *Sphacelotheca* 7: 499
  - 2. Spores in a hard black crust *Melanopsichium* 17: 484

### Didymosporae

Spores united by twos or 2-celled

- I. Spore-bearing hyphae tubular, enclosed in a stroma *Mycosyrinx* 17: 484
- II. Spore-bearing hyphae not in a stroma
  - 1. Spores joined laterally by a narrow isthmus; sporidioles pleurogenous *Schizonella* 7: 500
  - 2. Spores joined horizontally and broadly; sporidioles acrogenous *Schroeteria* 7: 500

### Dictyosporae

Spores closely joined in masses, the latter appearing to be many-celled spores

- I. Spores or cells of each mass alike
  - 1. Sporidioles pleurogenous or acrogenous; usually not foliicole
    - a. Promycelium simple *Tolyposporium* 7: 501
    - b. Promycelium branched *Tolyposporella* 14: 427
  - 2. Sporidioles acrogenous, typically foliicole
    - a. Sporidioles numerous
      - (1) Spore masses covered by a layer of sterile cells *Doassansia* 7: 502  
(incl. *Cornuella*, *Burrillia* 11: 236)
      - (2) Spore masses without a sterile layer *Tubercinia* 7: 507
    - b. Sporidioles solitary; sori reddish, usually fructicole *Thecophora* 7: 507
  - 3. Sporidioles unknown; sori mostly very black *Sorosporium* 7: 511  
(incl. *Poecilosporium* 16: 380)
- II. Spores or cells of two kinds in each mass, central few large, peripheral many, small
  - 1. Sori of many sacks containing spore masses *Polysaccopsis* 16: 381
  - 2. Sori without sacks *Urocystis* 7: 515

## Class 5. BASIDIOMYCETES

Spores produced on basidia, not inclosed in asci.

### Order 14. AGARICALES (HYMENOMYCETES)

Basidia exposed on an even or modified hymenium, the latter usually in the form of gills, pores or teeth.

**Family 60. TREMELLACEAE**

6: 760, 9: 257, 11: 142, 14: 244, 16: 215, 17: 203

Pileus typically gelatinous and homogeneous, horny when dry, reviving when wet, sometimes waxy or leathery but then with divided basidia; hymenium typically amphigenous or superior, smooth or somewhat convolute; basidia globose to terete, transversely or longitudinally divided, or in one subfamily merely terete-clavate and furcate, 1-4-sterigmate; spores globose to reniform and oblong, continuous or septate, producing sporidioles on germination; conidia often present with the spores. Some gelatinous forms included in the following families on account of the character of the hymenium seem to belong properly in this family.

**Subfamily Auriculariae**

Basidia transversely septate, elongate or fusoid

- I. Pileus, or at least the hymenium, gelatinous
  - i. Entire pileus gelatinous
    - a. Pileus verruciform or effuse
      - (1) Basidia mixed with paraphyses **Mytilopsis** 14: 246
      - (2) Basidia without paraphyses
        - (a) Spores not producing sporidioles on germination  
**Platyglea** 6: 771
        - (b) Spores producing sporidioles  
**Helicoglea** 11: 145
    - b. Pileus disciform, cupulate or columnar
      - (1) Pileus erect, filiform, columnar **Eucronartium** 17: 211
      - (2) Pileus not columnar, disciform or cupulate
        - (a) Basidia without sterigmata **Auriculariella** 6: 407
        - (b) Basidia with sterigmata
          - x. Basidia 2-sterigmate; pileus applanate  
**Phlebophora** 16: 215
          - y. Basidia 3-4-sterigmate; pileus pezizoid  
**†Collopezis** 16: 216  
(**Tjibodasia**)
  2. Pileus coriaceous or membranous, hymenium gelatinous
    - a. Pileus coriaceous; hymenium reticulate-costate  
**Auricularia** 6: 762
    - b. Pileus membranous; hymenium smooth or plicate  
**Hirneola** 6: 764
- II. Pileus waxy, crust-like or byssoid
  1. Pileus waxy or crust-like
    - a. Pileus very minute, disciform, on a pedicel  
**Pilacrella** 14: 246
    - b. Pileus membranous, incrusting  
**Jola** 14: 245
  2. Pileus byssoid
    - a. Basidia without a sac near the base **Stypinella** 14: 244
    - b. Basidia with a sack near the base **Saccoblastia** 14: 244

**Subfamily Tremellae**

Basidia longitudinally 4-divided, or cruciate, globose or ovoid

- I. Spores alone present, i. e., homosporous

1. Pileus waxy or byssoid
    - a. Pileus waxy, scarcely gelatinous
      - (1) Pileus effuse **Protomerulius 11: 142**
      - (2) Pileus cupulate or concave **Hirneolina 17: 208**
    - b. Pileus byssoid **Stypella 14: 246**
  2. Pileus gelatinous
    - a. Pileus covered with sterile setae, effuse **Heterochaete 14: 247**
    - b. Pileus without sterile setae
      - (1) Pileus erect, clavate, columnar or spatulate
        - (a) Pileus clavate, simple or branched **Clavariopsis 16: 219**  
(incl. *Hyaloria* 14: 252)
        - (b) Pileus spatulate, large, simple **Gyrocephalus 6: 795**
      - (2) Pileus effuse, globose, cupulate or pulvinate
        - (a) Spores 1-celled
          - x. Pileus cupulate, radicate **Femsjonia 6: 779**
          - y. Pileus pulvinate or effuse
            - (y) Basidia in chains; hymenium not cerebriform **Sirobasidium 14: 248**
            - (y) Basidia not in chains; hymenium cerebriform **Tremella 6: 780**  
(inc. *Naematelia* 6: 792)
        - (b) Spores 2-4-celled, at least upon germination, reniform
          - x. Spores 2-4-celled, sporidioles allantoid; pileus truncate-cupulate or effuse **Exidia 6: 772**
          - y. Spores 2-celled, sporidioles straight; pileus pulvinate, gyrose **Ulocolla 6: 777**
  - II. Spores and conidia present, i. e., heterosporous
    1. Pileus ascending and dendroid **†Collodendrum 17: 208**  
(*Tremellodendron*)
    2. Pileus effuse to pulvinate
      - a. Spores on the disk, conidia on the exciple **Craterocolla 6: 778**
      - b. Conidia and spores usually succeeding each other on the same area
        - (1) Pileus cerebriform, pulvinate or effuse **Tremella 6: 780**
        - (2) Pileus not cerebriform, crust-like
          - (a) Spores reniform, conidia ovoid **Sebacina 6: 540**
          - (b) Spores ovoid, conidia hamate **Exidiopsis 14: 248**
- Subfamily Dacryomycetae**
- Basidia terete-clavate, furcate above
- I. Pileus effuse, pulvinate or globose, typically sessile
    1. Spores septate, at least upon germination
      - a. Pileus gyrose; spores not horseshoe-shaped **Dacryomyces 6: 796**
      - b. Pileus tuberculiform; spores horseshoe-shaped **Delortia 6: 795**

2. Spores not septate
  - a. Spores hyaline; pileus more or less effuse, waxy
 

**Arrhytidia 6: 804**  
(incl. **Ceracea 6: 805**)
  - b. Spores colored; pileus subglobose
 

**Seismosarca 9: 260**
- II. Pileus cupulate, clavate or foliose, typically stalked
  1. Pileus irregularly cup-shaped, usually stipitate
    - a. Pileus gelatinous or cartilaginous, cupulate
 

**Guepinia 6: 805**
    - b. Pileus leathery, hymenium gelatinous, cupulate-disciform
 

**Ditiola 6: 813**
  2. Pileus erect, foliose-lobed
 

†**Tremellastrum 17: 193**  
(**Tremellopsis**)
  3. Pileus capitate to lanceolate, stipitate
    - a. Pileus capitate, head inflated, corrugate; stipe hollow
      - (1) Homosporous
 

**Collyria 6: 811**
      - (2) Heterosporous
 

**Dacryopsis 11: 149**
    - b. Pileus clavate, club plicate
 

**Dacryomitra 6: 811**
    - c. Pileus lanceolate, hanging
 

**Myxomycidium 16: 220**

#### Family 61. CLAVARIACEAE

6: 690, 9: 247, 11: 134, 14: 235, 16: 203, 18: 193

Hymenium not discrete from the hymenophore, amphigenous; pileus more or less clavate or coralloid, subcarnose or leathery, simple or branched.

- I. Pileus with many crowded, leaf-like branches
 

**Sparassis 6: 690**
- II. Branches not leaf-like
  1. Pileus fleshy
    - a. Branches fibrous-splitting
 

**Acurtis 6: 691**
    - b. Branches not splitting
 

**Clavaria 6: 692**  
(incl. **Phaeoclavulina 14: 238**)
  2. Pileus leathery, rarely subgelatinous
    - a. Pileus somewhat gelatinous
      - (1) Pileus capitate; cap hollow, inflated
 

**Baumanniella 14: 244**
      - (2) Pileus clavate or coralloid
 

**Calocera 6: 732**
    - b. Pileus leathery
      - (1) Pileus tomentose
 

**Lachnocladium 6: 738**
      - (2) Pileus not tomentose
        - (a) Pileus terete or compressed, dry, cartilaginous
 

**Pterula 6: 740**  
(incl. **Phaeopterula 17: 201**)
        - (b) Pileus simple, filiform or capitate
 

**Hirsutella 11: 140**
    - x. Pileus capitate, inflated
 

**Physalacria 6: 759**
    - y. Pileus more or less filiform

- (x) Pileus clavulate with filiform stipe  
**Typhula 6: 743**  
 (y) Pileus linear or subclavate; stipe short or none  
**Pistillaria 6: 752**

### Family 62. THELEPHORACEAE

6: 513, 9: 218, 11: 115, 14: 212, 16: 181, 18: 160

Hymenium inferior or amphigenous, leathery, waxy or membranous, smooth, i. e., without spines, pores, etc., sometimes somewhat ridged, or cracked; spores various.

#### 1. Not parasitic on algae

##### 1. Pileus more or less gelatinous

###### a. Pileus effuse

(1) Spores hyaline

**Cerocorticium 16: 196**

(2) Spores olivaceous

**Aldridgea 11: 129**

###### b. Pileus convex to discoid

**Discocyphella 16: 202**

##### 2. Pileus not gelatinous

###### a. Hymenium somewhat ridged or roughened

(1) Hymenium subcarnose, infundibuliform, costate

**Craterellus 6: 514**

(2) Hymenium leathery

(a) Hymenium woody, with radiating ridges, warty-roughened

**Cladoderris 6: 547**

(b) Hymenium similar, but with fan-like ridges

**Beccariella 6: 550**

###### b. Hymenium smooth, or absent

(1) Hymenium present, smooth

(a) Hymenium without cystidia

x. Pileus urn-shaped, stipitate

**Hypolyssus 6: 521**

y. Pileus typically crateriform to dimidiate

(x) Pileus with distinct intermediate stratum

**Stereum 6: 551**

(y) Pileus homogeneous or nearly so

m. Pileus vertical, beautifully convolute, mitriform

**Skepperia 6: 603**

n. Pileus not convolute

(m) Basidia not transeptate

**Thelephora 6: 521**

(incl. *Friesula* 6: 685)

(n) Basidia transeptate

**Septobasidium 11: 118**

z. Pileus resupinate, effuse, rarely cupulate

(x) Pileus not cupulate

m. Hymenium waxy

(m) Spores large, citriform

**Michenera 6: 652**

(n) Spores medium, not citriform

**Corticium 6: 603**

(incl. *Kneiffia* 6: 510)

n. Hymenium fleshy, spores minute, colored

- (m) Spores smooth **Coniophora 6: 647**
- (n) Spores angular or aculeate **Prillieuxia 14: 225**
- (y) Pileus cupulate or cylindric
  - m. Pileus cupulate **Cyphella 6: 667**
  - n. Pileus terete to cylindric **Solenia 6: 424**
- (b) Hymenium with cystidia
  - x. Cystidia simple
    - (x) Cystidia hyaline **Peniophora 6: 640**  
(incl. *Coniophorella* 17: 183)
    - (y) Cystidia colored **Hymenochaete 6: 588**  
(incl. *Lloydia* 16: 1116)
  - y. Cystidia septate **Bonia 11: 123**
- (2) Hymenium absent, or more or less cobwebby
  - (a) Biogenous
    - x. Hymenium erdophytic **Endobasidium 17: 190**
    - y. Hymenium erumpent
      - (x) Basidia circinate **Helicobasidium 6: 666**
      - (y) Basidia not circinate
        - m. Spores globose; on galls **Urobasidium 11: 131**
        - n. Spores cylindric; on roots **\*Chrysobasidium 11: 131**  
(*Aureobasidium*)
    - o. Spores oblong; on leaves **Exobasidium 6: 664**
  - (b) Saprogenous
    - x. Spores septate, fuscous **Heterobasidium 9: 237**
    - y. Spores 1-celled, hyaline
      - (x) Brown stellate hyphae present **Asterostroma 9: 236**
      - (y) Brown stellate hyphae absent
        - m. Basidia 4-spored **Hypochnus 6: 653**
        - n. Basidia 2-spored **Matruchotia 11: 118**

(Cfr. *Tulasnellaceae* 14: 234)

## II. Parasitic on algae

- 1. Algae *Chroococcus* **Cora 6: 685**
- 2. Algae *Scytonema* **Rhipidonema 6: 687**

(Zahlbruckner 237)

## Family 63. HYDNACEAE

6: 429, 9: 208, 11: 106, 14: 201, 16: 174, 18: 147

Pileus cap-shaped to resupinate, fleshy, gelatinous, woody or leathery; hymenium consisting of spines, teeth, or granules, rarely somewhat pore-like; spores various.

### I. Pileus more or less gelatinous

- 1. Gelatinous, stalked or dimidiate; with teeth **Tremellodon 6: 479**
- 2. Waxy-gelatinous, resupinate, with granules **Grandiniella 14: 208**

### II. Pileus fleshy, woody or leathery

- 1. Hymenium of more or less subulate teeth or spines

- a. Pileus present
  - (1) Perennial; woody †Hydnophysa 16: 177  
(Hydnofomes)
  - (2) Not perennial
    - (a) Pileus clavaria-like Hericism 6: 478
    - (b) Pileus not clavaria-like
      - x. Teeth free; mostly carnose
        - (x) Pileus typically stalked Hydnum 6: 430  
(incl. Echinodontium 16: 176)
        - (y) Pileus horizontal Sistotrema 6: 480
      - y. Teeth connected at base; coriaceous
        - (x) Cystidia lacking Irpex 6: 482
        - (y) Cystidia present
          - m. Cystidia subulate Asterodon 11: 111
          - n. Cystidia stellate Hydnochaete 14: 211
  - b. Pileus lacking
    - (1) Teeth on a membranous subicle Caldesiella 6: 477
    - (2) Teeth without a subicle Mucronella 6: 512
- 2. Hymenium of granules, warts or folds
  - a. Hymenium of granules or warts
    - (1) Hymenium with penicillate-multifid warts Odontia 6: 506
    - (2) Hymenium with simple granules or warts
      - (a) Hymenium porose-reticulate, granular Grammothele 6: 505
      - (b) Hymenium with difform, obtuse cylindric warts Radulum 6: 493  
(incl. Phaeoradulum 16: 179)
      - (c) Hymenium with globose hollowed granules Grandinia 6: 500
  - b. Hymenium with folds or laminae
    - (1) Hymenium with fold-like crests
      - (a) Crests with edge entire Phlebia 6: 497
      - (b) Crests with edge incised Lopharia 6: 500
    - (2) Hymenium with anastomosing radiate laminae Thwaitesiella 11: 112

#### Family 64. POLYPORACEAE

6: 1, 9: 150, 11: 79, 14: 164, 16: 138, 17: 95

Pileus cap-shaped, shelf-like, or resupinate, very rarely volvate or annulate, fleshy, leathery or woody, rarely gelatinous; hymenium consisting of pores, very rarely somewhat lamellar; spores typically 1-celled, hyaline or colored.

#### I. Pileus fleshy, putrescent, or gelatinous

##### i. Pileus fleshy

##### a. Stipe volvate or annulate

##### (1) Stipe volvate

†Boletium 14: 164  
(Volvoboletus)



- (2) Stipe annulate **Boletopsis 14: 164**
- b. Stipe not volvate or annulate
  - (1) Stipe central, tubes usually not discrete from each other
    - (a) Spores cylindric, minute **†Bactroboletus 16: 142**  
(**Filoboletus**)
    - (b) Spores globose to fusoid
      - x. Pileus and stipe beautifully squarrose-scaly  
**Strobilomyces 6: 49**
      - y. Pileus and stipe not squarrose-scaly
        - (x) Layer of tubes separating readily from the hymenophore  
**Boletus 6: 2**  
(incl. **Suillus**, **Tylopilus 16: 142**)
        - (y) Layer of tubes not separating readily from the hymenophore
          - m. Tubes not discrete from each other
            - (m) Tubes radiate; hymenophore mucronate  
**Boletinus 6: 51**
            - (n) Tubes sinuose or gyrose; hymenophore smooth  
**Gyrodon 6: 51**
            - n. Tubes discrete from each other  
**Fistulinella 17: 101**
  - (2) Stipe lateral; tubes discrete from each other  
**Fistulina 6: 54**
- 2. Pileus gelatinous
  - a. Stalked; spores brown
    - (1) Pileus single **Rodwaya 16: 172**
    - (2) Pileus many, superimposed on the stipe  
**Mycodendrum 9: 206**
  - b. Mostly sessile; spores hyaline  
**Laschia 6: 404**
- II. Pileus leathery, corky or woody, rarely tough-fleshy
  - 1. Tubes gelatinous  
**Gloeoporus 6: 403**
  - 2. Tubes not gelatinous
    - a. Hymenium covered by a volva-like membrane  
**Cryptoporus 17: 125**
    - b. Hymenium not volvate
      - (1) Tubes in several layers; perennial, woody  
**Fomes 6: 150**
      - (2) Tubes not stratified in layers
        - (a) Tubes typically pore-like
          - x. Tube layer distinct but not separable from the hymenophore; tough-fleshy to leathery
          - (x) Pileus thick, tough-fleshy, stalked or sessile  
**Polyporus 6: 55**  
(incl. **Laccocephalum 11: 87**)
        - (y) Pileus thin, coriaceous or membranous
          - m. Pileus stipitate to dimidiate
            - (m) Tubes not spiny inside **Polystictis 6: 208**
            - (n) Tubes spiny inside **Mucronoporus 9: 188**
          - n. Pileus resupinate  
**Poria 6: 292**

- y. Tube layer not distinct from hymenophore; tubes often unequally sunken
  - (x) Pileus suberose; typically sessile to resupinate
    - m. Tubes subrotund **Trametes 6: 334**  
(incl. *Sclerodepsis* 9: 194)
    - n. Tubes not round, or of two forms
      - (m) Tubes of two forms, one normal, the other loculiform, enclosed **Myriadoporus 6: 384**
      - (n) Tubes alike, superficial
        - r. Tubes hexagonal **Hexagonia 6: 356**
        - s. Tubes sinuose-labyrinthine, elongate **Daedalea 6: 370**
  - (y) Pileus leathery, membranous or waxy; sessile
    - m. Tubes immersed in discrete warts; resupinate **Porothelium 6: 421**
    - n. Tubes not immersed in warts
      - (m) Tubes with a papilla in the center **Theloporus 6: 421**
      - (n) Tubes reticulate-gyrose, not papillate **Merulius 6: 411**  
(incl. *Poroptyche* 9: 206)
- (b) Tubes lamella-like (see *Daedalea* also)
  - x. Tubes of many little laminae **Bresadolia 6: 388**
  - y. Tubes lamellose, in radiating series **Favolus 6: 390**
  - z. Tubes really concentric lamellae **Cyclomyces 6: 389**

### Family 65. AGARICACEAE

Pileus typically cap-shaped and stalked, rarely sessile and the hymenium above, fleshy to corky; pileus sometimes enclosed in a cap veil which persists at the base of the stipe as a volva; hymenium consisting of radiating lamellae or gills, often protected by a gill veil which remains on the stipe as a ring; gills covered with basidia, bearing typically 4 sterigmata and spores; spores typically 1-celled, hyaline or colored.

#### Leucosporae

5: 8, 9: 1, 11: 1, 14: 63, 16: 1, 18: 1

Spores colorless, or very dilutely colored even in spore prints, globose to fusoid, smooth or rough

- I. Edge of the gills entire, not canaliculate or split
  - i. Fleshy, putrescent, not reviving when wet
    - a. Edge of the gills acute, not fold-like
      - (1) Trama of the pileus not vesiculose; spores typically smooth
        - (a) Gills more or less fleshy, readily separable into two layers
          - x. Stipe central or nearly so
          - (x) Hymenophore discrete from the fleshy stipe
            - m. Stipe volvate

- (m) Stipe annulate **Amanita 5:8**
- (n) Stipe not annulate **Amanitopsis 5:20**
- n. Stipe not volvate
  - (m) Stipe annulate **Lepiota 5:27**
  - (n) Stipe not annulate **Schulzeria 5:72**
- (y) Hymenophore homogeneous and confluent with the fleshy or fibrous-elastic stipe
  - m. Stipe annulate, without a volva **Armillaria 5:73**
  - n. Stipe not annulate or volvate
    - (m) Gills adnate or sinuate, not decurrent **Tricholoma 5:87**
    - (n) Gills typically decurrent **Clitocybe 5:141**
  - (z) Hymenophore confluent with the cartilaginous stipe but heterogeneous from it
    - m. Gills not decurrent
      - (m) Cap very thin, diaphanous **Hiatula 5:305**
      - (n) Cap not diaphanous
        - r. Margin of the young cap turned in **Collybia 5:200**
        - s. Margin of the young cap straight **Mycena 5:251**  
(incl. *Eomycenella* 17:21)
    - n. Gills decurrent; cap umbilicate **Omphalia 5:308**
  - y. Stipe excentric or none **Pleurotus 5:339**
  - (b) Gills waxy rather than fleshy, splitting with difficulty **Hygrophorus 5:387**
  - (2) Trama of cap more or less vesiculose; spores globose, spiny
    - (a) Gills with milky, white or bright-colored sap **Lactarius 5:423**  
(incl. *Lactariopsis* 17:30) **Russula 5:453**
    - (b) Gills with clear sap, if any
  - b. Edge of gills obtuse or fold-like
    - (1) Gills decurrent, dichotomous, somewhat waxy **Cantharellus 5:482**
    - (2) Gills not decurrent
      - (a) Gills somewhat broad, obtuse **Nyctalis 5:499**
      - (b) Gills thin or obsolete
        - x. Gills thin
          - (x) Gills vein-like, fleshy **Arrhenia 5:498**  
(incl. *Campanella* 14:100, *Rim-bachia* 11:32)
    - (y) Gills of two sorts, gelatinous **Stylobates 5:502**

- y. Gills obsolete **Cymatella 16: 49**
  - 2. Fleshy-leathery, leathery, corky or woody, persistent, reviving when wet
    - a. Fleshy-leathery or gelatinous-leathery
      - (1) Gills distinct
        - (a) Stipe discrete from the hymenophore
          - x. Cap fleshy and tough or thin and leathery
 **Marasmius 5: 503**  
(incl. *Marasmiopsis* 14: 101)
          - y. Cap gelatinous-leathery
 **Heliomyces 5: 569**
        - (b) Stipe and hymenophore continuous
          - z. Edge of gills acute
 **Lentinus 5: 571**  
(incl. *Lentodium* 14: 121, *Lentodopsis* 17: 47)
          - (y) Edge entire
 **Panus 5: 614**
        - y. Edge of gills obtuse, gills dichotomous
 **Xerotus 5: 630**
      - (2) Gills fold-like, edges canaliculate or crisp
 **Trogia 5: 635**
    - b. Corky
      - (1) Gills distinct
        - (a) Gills tomentose **Tilotus 5: 652**
        - (b) Gills smooth **Lenzites 5: 637**
      - (2) Gills line-like, parallel, flexuous **Hymenogramme 5: 652**
- II. Edge of gill split or appendiculate
  - 1. Fleshy
    - a. Stipe central; edge of gills split **Oudemansiella 5: 653**
    - b. Stipe lateral; edge with appendages **Pterophyllus 5: 654**
  - 2. Membranous or coriaceous
    - a. Membranous; stipe central; gills split into flexuous fragments
 **Rhacophyllus 5: 654**
    - b. Coriaceous; stipe none or lateral; edge split and revolute
 **Schizophyllum 5: 654**

### Rhodosporae

5: 656, 9: 82, 11: 43, 14: 124, 16: 69, 18: 52

Spores rosy, salmon-colored or rosy-rust-colored in spore prints, paler under the microscope

- I. Stipe central
  - 1. Hymenophore discrete from the stipe
    - a. Stipe volvate at base
      - (1) Stipe annulate also **Metraria 9: 82**
      - (2) Stipe not annulate **Volvaria 5: 656**
    - b. Stipe not volvate
      - (1) Stipe annulate **Annularia 5: 663**
      - (2) Stipe not annulate
        - (a) Fleshy; gills free **Pluteus 5: 665**

- (b) Tough; gills adnexed **Schinzinia 11:44**
- 2. Hymenophore homogeneous and confluent with the stipe
  - a. Gills decurrent
    - (1) Stipe fleshy-fibrous **Clitopilus 5:698**
    - (2) Stipe cartilaginous **Eccilia 5:729**
  - b. Gills adnexed, sinuate or free
    - (1) Stipe fleshy-fibrous; gills sinuate **Entoloma 5:679**
    - (2) Stipe cartilaginous; gills not sinuate
      - (a) Cap convex; margin at first inflexed **Leptonia 5:706**
      - (b) Cap campanulate; margin straight from the first **Nolanea 5:716**
- 3. Hymenophore continuous with the cartilaginous stipe, but different from it; voluate **Volvariella 16:70**
- II. Stipe excentric or none; lignicole **Claudopus 5:733**

**Ochrospora**

5:735, 9:90, 11:48, 14:131, 16:83, 18:62

Spores ochraceous or more or less rust-colored

- I. Gills not separating readily or naturally from hymenophore
  - I. Gill veil not cobwebby
    - a. Stipe central
      - (1) Stipe voluate or annulate
        - (a) Stipe voluate **Locellina 5:761**
        - (b) Stipe annulate **Pholidota 5:736**  
(incl. *Pholiotella* 9:90)
      - (2) Stipe not voluate or annulate
        - (a) Gills not deliquescing
          - x. Stipe fleshy
            - (x) Gills adnate or decurrent **Flammula 5:809**
            - (y) Gills mostly sinuate
              - m. Cap fibrillose, silky or scaly **Inocybe 5:762**
              - n. Cap smooth, more or less viscid **Hebeloma 5:791**
          - y. Stipe cartilaginous
            - (x) Gills decurrent **Tubaria 5:872**
            - (y) Gills not decurrent
              - m. Margin of cap inflexed at first **Naucoria 5:828**
              - n. Margin of cap straight
                - (m) Stipe discrete from hymenophore; gills free **Pluteolus 5:859**
                - (n) Stipe homogeneous with hymenophore **Galera 5:860**
          - (b) Gills deliquescing **Bolbitus 5:1073**
        - b. Stipe excentric or none; lignicole **Crepidotus 5:876**

- 2: Gill veil cobwebby, hanging curtain-like from the margin, often disappearing completely with age **Cortinarius 5:889**
11. Gills separating readily from the hymenophore; margin of cap persistently involute **Paxillus 5:983**

**Melanosporae**

5:991, 9:136, 11:69, 14:149, 16:112, 18:82

Spores purple, dark-purple to black

1. Spores purple or dark-purple
1. Hymenophore discrete from stipe
- a. Stipe volvate at base
- (1) Stipe annulate **Chitoniella 14:149**
- (2) Stipe not annulate **†Chitonis 5:992**  
**(Chironia, Clarkeinda)**
- b. Stipe not volvate
- (1) Stipe annulate **Agaricus 5:993**
- (2) Stipe not annulate; gills free **Pilosace 5:1010**
2. Hymenophore continuous with stipe
- a. Stipe annulate **Stropharia 5:1012**
- b. Stipe not annulate; margin sometimes cortinate
- (1) Margin of cap cortinate; rarely subannulate **Hypholoma 5:1027**
- (2) Margin not cortinate
- (a) Gills decurrent **Deconica 5:1058**
- (b) Gills not decurrent
- x. Margin of cap inflexed at first **Psilocybe 5:1043**
- y. Margin of cap straight **Psathyra 5:1060**
- II. Spores dark or black, not purple
1. Gills deliquescing **Coprinus 5:1078**
2. Gills not deliquescing
- a. Gills united above to the hymenophore
- (1) Cap fleshy, fleshy-waxy or membranous
- (a) Gills waxy; spores globose, spiny **Phaeohygrocybe 17:81**
- (b) Gills not waxy
- x. Margin of cap with a viscid cobwebby cortina **Phaeolimacium 16:110**
- y. Margin of cap not viscid-cortinate
- (x) Spores globose to elliptic
- m. Stipe annulate; variegated gills exceeding the margin **Anellaria 5:1125**
- n. Stipe not annulate
- (m) Cap fleshy, not striate; variegated gills exceeding the margin **Panaeolus 5:1118**
- (n) Cap membranous, striate; uniform gills not exceeding the margin **Psathyrella 5:1126**

- (y) Spores elongate, fusoid; gills decurrent  
**Gomphidius 5: 1137**
- (2) Cap leathery-horny; spores minute, globose  
**Anthracophyllum 5: 1139**
- b. Gills free above, not united to the hymenophore; stipe dilated into a lamellar disk above  
**Montagnites 5: 1140**

## Order 15. LYCOPERDALES (GASTEROMYCETES)

Typically terrestrial, sometimes lignicole or hypogaeous, fleshy, leathery or membranous; spores borne on basidia, in a receptacle or a peridium, continuous, hyaline or colored.

### Family 66. PHALLACEAE

7: 2, 9: 262, 11: 153, 14: 254, 16: 224, 17: 212

Receptacle arising from a volva, bearing outside or inside the sporiferous pulp or gleba, stalk-like, pileiform, or sessile and more or less clathrate

I. Gleba covering the outside of receptacle; receptacle stalk-like, pileate or appendaged

1. Receptacle pileate; gleba on outer surface of pileus

a. Stalk with an appendage below the pileus

(1) Appendage net-like; volva smooth **Dictyophora 7: 3**

(2) Appendage collar-like; volva aculeate

**Echinophallus 16: 226**

b. Stalk without an appendage

(1) Upper part of volva remaining with pileus, and enclosing the gleba

**Cryptophallus 14: 254**

(2) Upper part of volva not enclosing gleba at maturity

**Ithyphallus 7: 8**

(incl. **Alboffiella 16: 227**)

2. Receptacle without hanging pileus; gleba borne directly on the apex of the stalk-like receptacle

a. Receptacle without appendages

(1) Receptacle floccose

**Floccimutinus 14: 255**

(2) Receptacle not floccose

**Mutinus 7: 12**

(incl. **Aporophallus Itajahya**  
**11: 153, Jansia 16: 226**)

b. Receptacle or gleba with coralloid processes

**Kalchbrennera 7: 14**

II. Gleba on the inside of the hollow receptacle, which is clathrate or lobed

1. Receptacle hollow and clathrate, or formed of a few vertical branches joined at the apex

a. Receptacle stalked

(1) Gleba dimorphous, apex with sterile radiate laminae, lower part with convolute subclathrate lobes **Dictyobole 17: 213**

(2) Gleba not dimorphous

(a) Receptacle hollow-clathrate, stalked

- x. Openings polygonal **Simblum 7: 16**
  - y. Openings vertically elongate **Colus 7: 21**
- (b) Receptacle of thin anastomosing branches, stipitiform at base **Clathrella 16: 228**
- b. Receptacle sessile
  - (1) Hollow-clathrate, or of a few united vertical branches **Clathrus 7: 18**
  - (2) Radiately loculate within **Protuberia 11: 155**
- 2. Receptacle divided above into free laciniae or lobes
  - a. Receptacle expanded above into a horizontal border which is laciniate at the margin **Aseroe 7: 25**
  - b. Receptacle divided directly into lobes
    - (1) Lobes distinct from stalk in structure and color
      - (a) Lobes without winged appendages **Lysurus 7: 22**
      - (b) Lobes with membranous winged appendages **Blumenavia 11: 154**
    - (2) Lobes like the stalk in structure and color
      - (a) Receptacle spheric, lobes contiguous **Phallogaster 11: 155**
      - (b) Receptacle elongate or cupulate; lobes more or less spreading
        - x. Lobes sporiferous **Anthurus 7: 23**
        - y. Lobes not sporiferous **Calathiscus 7: 24**

#### Family 67. LYCOPERDACEAE

7: 48, 9: 266; 11: 157, 14: 257, 16: 230, 17: 217

Epigaeous, rarely hypogaeous or lignicole, peridium usually globose to pyriform, sessile or stipitate, membrano-coriaceous, furnished with a mouth or opening irregularly, enclosing a more or less powdery, often floccose, gleba; spores globose to ellipsoid, hyaline or colored, smooth or rough.

- I. Peridium more or less completely traversed by a continuation of the stipe, i. e., a columella; gleba lamellate or with membranous septa or more or less uniform
  - Subfamily Podaxae**
  - 1. Gleba lamellate; capillitium none; peridium turbinate **Gyrophragmium 7: 51**
  - 2. Gleba not lamellate, more or less divided by anastomosing septa, or uniform
    - a. Gleba with septa
      - (1) Capillitium none; stipe central, not volvate, short
        - (a) Peridium with broad false radiate lamellae beneath **Elasmomyces 14: 258**
        - (b) Peridium without lamellae beneath **Secotium 7: 51**
      - (2) Capillitium present, filamentous; stipe volvate **Polyplocium 7: 55**
    - b. Gleba without septa or locules; capillitium copious
      - (1) Peridium subsessile; columella free, not touching the apex of the peridium
        - (a) Epigaeous



- x. Columella cup-shaped; exoperidium areolate  
**Cycloderma 7: 56**
  - y. Columella obturbinate; exoperidium splitting into lobes  
**Geasteropsis 17: 229**
  - (b) Hypogaeous; spores subfusoid **Mesophellia 7: 56**
  - (2) Peridium stipitate; columella touching the apex of the peridium
    - (a) Peridium splitting longitudinally, or laterally lacerate
      - x. Peridium opening lengthwise by valves  
**Chaenoderma 9: 268**
      - y. Peridium laterally lacerate **Cauloglossum 7: 57**
    - (b) Peridium opening horizontally or circularly
      - x. Peridium opening around the stipe  
**Podaxon 7: 58**
      - y. Peridium opening circularly around the middle  
† **Sphaerocybis 7: 60**  
(**Sphaericeps**)
- II. Peridium typically without a columella, with exo- and endoperidium; gleba floccose, rarely septate **Subfamily Geasterae**
- I. Peridium stalked
    - a. Inner peridium alone persistent
      - (1) Peridium fixed to stipe, with distinct mouth  
**Tylostoma 7: 60**
      - (2) Peridium easily separable from stipe; mouth none  
**Queletia 7: 65**
    - b. Both peridial layers persistent
      - (1) Exoperidium forming a volva about the stipe
        - (a) Endoperidium convex; spores on upper surface  
**Battarea 7: 65**
        - (b) Endoperidium hemispheric; spores within  
† **Podoloma 17: 223**  
(**Battareopsis**)
      - (2) Exoperidium not volvate; inner peridium with a mouth
        - (a) Endoperidium with plicate-sulcate mouth; capillitium copious  
**Husseyia 7: 67**
        - (b) Endoperidium suspended free in cavity of exoperidium, mouth with bright-colored scales  
**Mitromyces 7: 68**
  - 2. Exoperidium sessile, typically stellate-laciniate, containing 1 or more endoperidia
    - a. Endoperidium one
      - (1) Spores borne on the inside
        - (a) Exoperidium closed **Diploderma 7: 92**
        - (b) Exoperidium opening stellately or circularly
          - x. Exoperidium stellate
            - (x) Endoperidium dehiscent, usually by a mouth; capillitium present  
**Geaster 7: 70**
            - (y) Endoperidium indehiscent; capillitium none  
**Stella 9: 272**

- y. Exoperidium cup-shaped, mouth minute, ciliate  
**Diplocystis 7: 92**
    - (2) Spores borne on the outside of endoperidium; stellate  
**Trichaster 7: 93**
  - b. Endoperidia several
    - (1) Mycelium crust-like; capillitium not hollow  
**Broomeia 7: 93**
    - (2) Mycelium not crust-like; capillitium hollow  
**Coelomyces 7: 94**
- III. Peridium without a columella; exoperidium lacking or consisting of a papery or spiny cortex; gleba floccose **Subfamily Lycoperdace**
- 1. Peridium with a distinct, stalk-like sterile base; exoperidium spiny or warty  
**Lycoperdon 7: 106**
  - 2. Peridium without sterile base; gleba fertile throughout
    - a. Peridium sessile or nearly so
      - (1) Capillitium a dense elastic mass discrete from the peridium
        - (a) Peridium persistent **Lanopila 7: 95**
        - (b) Peridium falling away **Eriosphaera 7: 96**
      - (2) Capillitium not dense elastic and discrete
        - (a) Peridium persistent
          - x. Mouth at apex, or lacking **Eovista 7: 96**
          - y. Mouth at base when in the ground  
**Catastoma 11: 165**
        - (b) Peridium entirely falling away **Lycoperdopsis 16: 243**
    - b. Peridium stipitate; exoperidium dehiscing above along undulating folds  
**Calvatia 7: 105**
- IV. Peridium without columella; gleba with cell-like spaces, often containing sporangioles, or powdery **Subfamily Sclerodermatae**
- 1. Gleba without sporangioles, finally powdery
    - a. Peridium none; gleba naked, subcylindric  
**Gymnoglossum 11: 158**
    - b. Peridium present, enclosing the gleba
      - (1) Peridium sessile or nearly so
        - (a) Peridium not dehiscent
          - x. Gleba reticulate-veined, hard **Corditubera 14: 265**
          - y. Gleba not reticulate-veined, somewhat floccose
            - (x) Spores globose **Hippoperdon 7: 133**
            - (y) Spores fusiform **Castoreum 7: 142**
        - (b) Peridium dehiscent stellately or irregularly  
**Scleroderma 7: 134**  
(incl. **Caloderma 16: 243**)
      - (2) Peridium stalked
        - (a) Peridium not dehiscent, clavate †**Corynogaster 14: 266**  
(**Clavogaster**)
        - (b) Peridium dehiscent

- x. Peridium clavate, splitting above and entirely disappearing  
**Favillea 7: 146**
- y. Peridium globoid, not entirely disappearing
  - (x) Stipe hollow; peridium dehiscing irregularly, or rimose  
**Phellorina 7: 145**
  - (y) Stipe not hollow
    - m. Peridium many-lobed; stipe fibrous-woody  
**Xylopodium 7: 143**
    - n. Peridium reticulately dehiscent; stipe solid  
**Areolaria 7: 144**
- 2. Gleba containing numerous sporangioles
  - a. Sporangioles fleshy or gelatinous
    - (1) Peridium stipitate; stipe with persistent cupulate volva  
**Dictyocephalus 17: 238**
    - (2) Peridium not volvate, sessile or with stipe-like base
      - (a) Parasitic in glumes; peridium not dehiscent  
**Testicularia 7: 150**
      - (b) Terrestrial or parasitic on roots
        - x. Peridium with sterile stipe-like base, mucose-cellular within  
**Polysaccum 7: 146**
        - y. Peridium sessile, fleshy-cellular within  
**Polygaster 7: 146**
  - b. Sporangioles membranous, not fleshy or gelatinous
    - (1) Peridium corky; sporangioles round  
**Arachnium 7: 150**
    - (2) Peridium membranous; sporangioles cylindric, gyrose  
**Scoleciocarpus 7: 151**
    - (3) Peridium hard; sporangioles large, flexuous  
**Paurocotylis 7: 152**

### Family 68. HYMENOGASTRACEAE

7: 154, 9: 280, 11: 168, 14: 267, 16: 245, 17: 239

Typically subterranean, very rarely epigaeous, mycelium often persistent; peridium not opening at maturity, wall occasionally lacking, more or less globose; gleba fleshy or gelatinous, putrescent, more or less cellular or loculate, capillitium none.

- I. Peridium wall present, distinct
  - i. Peridium easily separating from the gleba
    - a. Peridium volvate
      - (1) Peridium silky, reticulate-sulcate; volva gelatinous  
**Clathrogaster 16: 250**
      - (2) Peridium waxy-gelatinous, not sulcate  
**Torrendia 17: 241**
    - b. Peridium not volvate
      - (1) Peridium vertical, elongate-cylindric; basidia 2-spored  
**Protoglossum 11: 158**
      - (2) Peridium more or less globose

- (a) Endosporium and exosporium separated by a hyaline mucus  
**Leucogaster** 9: 281
- (b) Endosporium and exosporium contiguous
  - x. Spores elliptic to lanceolate, smooth  
**Hysterangium** 7: 155
  - y. Spores globose, rough or spiny
    - (x) Peridium lanate; basidia usually 7-spored  
**Sclerogaster** 11: 169
    - (y) Peridium not lanate; basidia 3-4-spored
      - m. Gleba with a sterile base, radicate  
**Octaviana** 7: 158
      - n. Gleba without a sterile base, not radicate  
**Martellia** 16: 252
- 2. Peridium separating from the gleba with difficulty or not at all
  - a. Peridium covered with thread-like masses of mycelium
    - (1) Spores hyaline  
**Rhizopogon** 7: 161
    - (2) Spores colored  
**Melanogaster** 7: 164
  - b. Peridium without thread-like masses of mycelium
    - (1) Spores spiny
      - (a) Gleba percurrent by a columella  
**Arcangeliella** 16: 255
      - (b) Gleba without a columella  
**Hydnangium** 7: 175
    - (2) Spores not spiny, smooth, verrucose, rugose, etc.
      - (a) Gleba with branching columella and sterile base  
**Dendrogaster** 17: 240
      - (b) Gleba without columella or sterile base  
**Hymenogaster** 7: 168  
(incl. *Chamonixia*, *Leucophleps*  
16: 251)
- II. Peridium wall lacking
  - 1. Hypogaeous
    - a. Spores elliptic, striate-sulcate  
**Gautiera** 7: 177
    - b. Spores globose, spiny or warty  
**Gymnomyces** 16: 249
  - 2. Epigaeous; spores globose, warty  
**Macowanites** 7: 179

#### Family 69. NIDULARIACEAE

7: 28, 9: 265, 11: 156, 14: 256, 16: 229, 17: 214

Epigaeous, fimicole or lignicole, funnel-shaped to cup-shaped, leathery, containing one to many lentiform or globoid sporangioles, the latter attached by a cord to the wall of the peridium; spores elliptic, smooth.

#### I. Peridium single

- 1. Peridium with several to many sporangioles
  - a. Peridium torn at the apex in opening  
**Nidularia** 7: 28
  - b. Peridium opening by a deciduous membrane
    - (1) Sporangioles attached to wall by a cord
      - (a) Spores mixed with filaments; peridium of three united layers  
**Cyathus** 7: 32

(b) Spores not mixed with filaments; peridium of a single cottony layer

**Crucibulum 7:43**

(2) Sporangioles densely crowded in a glutinous substance

**Nidula 17:215**

2. Peridium with a single gelatinous sporangiole

**Dacryobolus 7:45**

II. Peridium double, outer stellate, inner with a single viscous sporangiole

**Sphaerobolus 7:46**

## FUNGI IMPERFECTI

Secondary or propagative stages of other fungi, largely Ascomycetes, characterized by the presence of conidia borne in perithecia-like or disk-like structures, on a stroma, or on a mycelial mass. Many of these forms have been connected by means of experiment with the corresponding perfect stage, but the vast majority of them are found alone in nature.

### Order 16. PHOMATALES (Sphaeropsideae Sacc. 3:1)

Conidia borne on simple or branched threads, so-called basidia, in pycnidia; pycnidia globose, conic, elongate, dimidiate, disk-shaped or cup-shaped, membranous, carbonous, coriaceous or somewhat fleshy, usually black, sometimes bright-colored.

#### Family 70. PHOMATACEAE (Sphaerioidaceae 3:1)

Pycnidia globose, conic or lens-like, membranous, carbonous or subcoriaceous, black, immersed or superficial, separate or in a stroma; conidia from 1 to many-celled, hyaline or dark.

#### Hyalosporae

3:1, 10:100, 11:472, 14:844, 16:825, 18:220

Conidia 1-celled, hyaline, globose, ovoid or oblong, often curved

I. Pycnidia separate

1. Pycnidia smooth

a. Pycnidia borne in discolored areas, i. e., maculicole

**Phyllosticta 3:3**

b. Pycnidia not maculicole

(1) Conidia single, not in chains

(a) Conidia muticate, not ciliate or trigonous

x. Subicle none

(x) Pycnidia muticate or papillate, not rostrate or cylindric

m. Pycnidia erumpent or immersed

(m) Basidia 1-spored, mostly short

r. Pycnidia papillate

(r) Growing on lichens

**Lichenosticta 16:851**

(s) Not lichenicole

h. Basidia hamate

**Phomopsis 18:264**

- i. Basidia not hamate
  - (h) Conidia less than  $15\mu$   
**Phoma** 3: 65
  - (i) Conidia  $15\mu$  or more long  
**Macrophoma** 10: 189
- s. Pycnidia astomous or irregularly dehiscent
  - (r) Pycnidia subcarnose, sclerotoid
    - h. Conidia obtuse at both ends  
**Plenodomus** 3: 184
    - i. Conidia acute at both ends  
**Sclerotiopsis** 3: 184
  - (s) Pycnidia carbonous, circumscissile  
**Piptostomum** 3: 183
- (n) Basidia several-spored, branched  
**Dendrophoma** 3: 178
- n. Pycnidia superficial
  - (m) Pycnidia dense in asteroma-like spots  
**Asteromella** 3: 182
  - (n) Pycnidia not in such spots
    - r. Pycnidia globose or nearly so
    - (r) Basidia short, straight  
**Aposphaeria** 3: 169
    - (s) Basidia beautifully circinate  
**Pyrenotrichum** 3: 184
    - (t) Basidia none  
**Mycogala** 3: 185
  - s. Pycnidia turbinate, carnosae  
**Crocicreas** 3: 183
- (y) Pycnidia rostrate or cylindric
  - m. Pycnidia globose, rostrate  
**Sphaeronaema** 3: 185
  - n. Pycnidia cylindric  
**Glutinium** 11: 500
- y. Subicle present
  - (x) Subicle white, cobwebby  
**Cicinnobolus** 3: 216  
(incl. *Byssocystis* 11: 502)
  - (y) Subicle dark
    - m. Subicle usually radiate  
**Asteroma** 3: 201
    - n. Subicle not radiate  
**Chaetophoma** 3: 199
- (b) Conidia ciliate, forked or angled
  - x. Conidia ciliate at apex
    - (x) Apex 1-ciliate  
**Strasseria** 18: 284
    - (y) Apex several-ciliate  
**Neottiospora** 3: 216
  - y. Conidia forked or angled
    - (x) Conidia Y-like; subicle present  
**Ypsilonia** 3: 215
    - (y) Conidia trigonous  
**Trigonosporium** 16: 892
- (2) Conidia in chains

- (a) Chains of spores simple or nearly so  
**Sirococcus 3: 217**
- (b) Chains of spores connected, often net-like  
**Peckia 3: 217**
- 2. Pycnidia with hairs or bristles
  - a. Bristles stellate; conidia ovoid **Staurochaeta 3: 218**
  - b. Bristles simple
    - (1) Basidia usually simple, conidia fusoid **Vermicularia 3: 221**
    - (2) Basidia usually branched, conidia oblong **Pyrenochaeta 3: 219**
- II. Pycnidia in a stroma
  - 1. Stroma globose, conic or valsa-like
    - a. Conidia in chains **\*Sirodothis**
    - b. Conidia single
      - (1) Stroma globose, conic or pulvinate
        - (a) Stroma more or less globose or pulvinate
          - x. Stroma unilocular **Dothiopsis 10: 228**
          - y. Stroma several- or many-locular
            - (x) Pycnidia distinct
              - m. Pycnidia aggregate in a basal stroma **Dothiorella 3: 235**
              - n. Pycnidia more deeply immersed
                - (m) Necks not joined in one ostiole **Lamyella 11: 510**
                - (n) Necks joined in a single ostiole **Torsellia 11: 510**
            - (y) Pycnidia merely locules in the stroma
              - m. Locules several, not numerous **Rabenhorstia 3: 243**
              - n. Locules very numerous **Fuckelia 3: 244**
      - (b) Stroma conic-truncate, conidia bacillar **Ceuthospora 3: 277**
    - (2) Stroma valsa-like
      - (a) Conidia fusoid or bacillar **Fusicoccum 3: 247**
      - (b) Conidia allantoid **Cytospora 3: 252**
      - (c) Conidia globose or ovoid **Cytosporella 3: 251**
  - 2. Stroma applanate, effuse or linear
    - a. Stroma linear, conidia connate in fours **Gamosporella 10: 238**
    - b. Stroma applanate or effuse
      - (1) Growing on leaves and stems **Placosphaeria 3: 244**
      - (2) Growing on fungi **Anthracoderma 10: 238**

#### Of Uncertain Position.

Manginia 18: 266. a Phoma with micro- and macropycnidia

**Phaeosporae**

3: 291, 10: 251, 11: 511, 14: 919, 16: 905, 18: 302

Conidia 1-celled, dark, globose, ovoid or oblong

**I. Pycnidia separate****1. Pycnidia without mycelium or subicle****a. Pycnidia smooth, not hairy**

(1) Conidia in chains, globose

**Sirothecium 10: 270**

(2) Conidia not in chains

(a) Pycnidia sessile, spheroid

x. Pycnidia beaked

**Naemosphaera 10: 259**

y. Pycnidia not beaked

(x) Pycnidia with a distinct orbicular locule

**Hypocenia 3: 320**

(y) Pycnidia without such a locule

m. Conidia on long basidia

(m) Pycnidia thin, white-lacerate at top

**Harknessia 3: 320**

(n) Pycnidia subcarbonous, not lacerate

**Sphaeropsis 3: 291**

n. Basidia very short or obsolete

**Coniothyrium 3: 305**

(b) Pycnidia stipitate, clavate

**Levieuxia 3: 321**

b. Pycnidia hairy or setose

**Chaetomella 3: 321****2. Pycnidia with distinct mycelium or subicle**

a. Pycnidia atomous, in a dark subicle

**Capnodiastrum 10: 272**

b. Pycnidia perforate, with basal hyphae

**Cicinnobella 18: 302****II. Pycnidia cespitose or in a stroma****1. Pycnidia in dense erumpent clusters****Haplosporella 3: 323****2. Pycnidia in a definite stroma**

a. Stroma applanate or effuse, foliicole

**Discomycetopsis 11: 517**

b. Stroma dot-like, discoid or hemispheric

(1) Stroma dot-like, immersed

**Melanconiopsis 16: 915**

(2) Stroma discoid to hemispheric

(a) Stroma discoid; spores large

**Nothopatella 11: 517**

(b) Stroma pulvinate; spores minute, catenulate

**Cytoplea 3: 325**

(c) Stroma hemispheric; pycnidia circinate

**†Circinastrum 3: 325****(Weinmannodora)****Hyalodidymae**

3: 384, 10: 295, 11: 522, 14: 942, 16: 925, 18: 335

Conidia hyaline, 1-septate, ovoid, ellipsoid or oblong

**I. Pycnidia separate****1. Pycnidia not beaked**

a. Pycnidia in discolored areas, maculicole



- (1) Pycnidia immersed, then erumpent, perforate
    - (a) Conidia muticate **Ascochyta 3:384**
    - (b) Conidia with setae at the apex **Robillardia 3:407**
  - (2) Pycnidia superficial, astomous **Puccinospora 10:317**
  - b. Pycnidia not maculicole
    - (1) Pycnidia hairy **Didymochaete 14:953**  
(**Vermiculariella 16:940**)
    - (2) Pycnidia smooth
      - (a) Conidia with an appendage at each end
        - x. Conidia with 1 or more bristles **Darluca 3:410**
        - y. Conidia with cap-like appendages **Tiarospora 10:311**
      - (b) Conidia muticate
        - x. Basidia 1-spored
        - (x) Pycnidia on a cobwebby subicle, phyllogenous **Actinonema 3:408**
        - (y) Pycnidia without subicle, ramicole **Diplodina 3:411**
      - y. Basidia several-many-spored **Cystotricha 3:413**
  - 2. Pycnidia beaked **Rhynchophoma 3:414**
- II. Pycnidia in a stroma
- I. Stroma effuse
    - a. Stroma consisting of two distinct layers **Thoracella 16:941**
    - b. Stroma of a single layer **Placosphaerella 14:948**
  - 2. Stroma verruciform
    - a. Stroma superficial **Pazschkella 16:528**
    - b. Stroma erumpent **Cytodiplospora 11:942**

**Phaeodidymae**

2:329, 10:275, 11:518, 14:927, 16:915, 18:319

Spores dark, 1-septate, ovoid to oblong

- I. Pycnidia separate
  - 1. Pycnidia beaked
    - a. Pycnidia hairy **Rhynchodiplodia 18:329**
    - b. Pycnidia smooth **Pellioniella 18:329**
  - 2. Pycnidia not beaked
    - a. Pycnidia hairy **Chaetodiplodia 3:374**
    - b. Pycnidia smooth
      - (1) Conidia with a mucous layer, very large **Macrodiplodia 3:374**
      - (2) Conidia without a mucous layer
        - (a) Pycnidia erumpent
          - x. Conidia 1-ciliate at apex **\*Chaetoconis 10:337**  
(**Kellermannia in part**)
          - y. Conidia muticate
          - (x) Conidia less than 15  $\mu$  long **Microdiplodia 18:323**

- (y) Conidia  $15\mu$  or more long **Diplodia 3:329**  
 (b) Pycnidia superficial, lignicole **Diplodiella 3:375**
- II. Pycnidia caespitose or in a stroma **Botryodiplodia 3:377**
1. Pycnidia caespitose
  2. Pycnidia in a stroma
    - a. Pycnidia and subicle enclosed in a hemispheric stroma  
**Lasiodiplodia 14:939**
    - b. Pycnidia without subicle, in a globose stroma  
**Diplodiopsis 18:335**

**Hyalophragmiae**

3:418, 10:330, 11:533, 14:962, 16:947, 18:358

Conidia hyaline, 2-several-septate, oblong to fusoid

- I. Pycnidia more or less globose
  1. Subicle none
    - a. Conidia appendaged at apex
      - (1) Seta 1 **Kellermannia 10:337**
      - (2) Setae 3 **Bartalinia 16:951**
    - b. Conidia muticate **Stagonospora 3:445**
  2. Subicle present, dark, phyllogenous **Asteromidium 10:338**
- II. Pycnidia elongate to cylindric **Mastomyces 3:456**

**Phaeophragmiae**

3:418, 10:317, 11:528, 14:953, 16:943, 18:362

Conidia hyaline, 2-several-septate, oblong to fusoid

- I. Pycnidia separate
  1. Conidia free from each other
    - a. Conidia muticate
      - (1) Pycnidia papillate or subastomous
        - (a) Pycnidia with flattened base **Macrobatis 11:532**
        - (b) Pycnidia globose, without flattened base
          - x. Pycnidia on a stellate subicle, superficial  
**Couturea 3:442**
          - y. Pycnidia without a subicle, erumpent
            - (x) Pycnidia hairy **Wojnowicia 14:960**
            - (y) Pycnidia smooth **Hendersonia 3:418**
        - (2) Pycnidia opening widely, with an operculum
          - (a) Pycnidia superficial, dark, hairy **Angiopoma 3:442**
          - (b) Pycnidia immersed, pale, smooth  
**Lichenopsis 3:442**
      - b. Conidia appendaged
        - (1) Conidia 1-ciliate at each end **Cryptostictis 3:443**
        - (2) Conidia 1-ciliate at base by the basidium  
**†Uroconis 18:368**  
**(Urohendersonia)**
        - (3) Conidia with a round or cup-like appendage at each end  
**Santiella 16:947**

- 2. Conidia united in groups
  - a. Conidia united into a fascicle Eriosporina 11:532
  - b. Conidia stellately united Prosthemia 3:444
- II. Pycnidia locules in a stroma Hendersonula 3:445

**Hyalodictyae**

16:955

Conidia hyaline, muriform, ovoid or oblong

- I. Pycnidia erumpent, papillate †Hyalothyris 16:955  
(Hyalothyridium)

**Phaeodictyae**

3:459, 10:338, 11:536, 14:964, 16:951, 18:369

Conidia dark, muriform, oblong to ovoid, rarely radiate or cruciate

- I. Pycnidia separate
  - 1. Conidia not reticulately roughened
    - a. Pycnidia corticole, erumpent Camarosporium 3:459
    - b. Pycnidia xylogenous, subsuperficial Cytosporium 3:470
  - 2. Conidia reticulately roughened Endobotrya 3:470
- II. Pycnidia locules in a stroma Dichomera 3:471

**Scolecosporae**

3:474, 10:349, 11:538, 14:967, 16:956, 18:376

Conidia hyaline or dilutely colored, elongate-fusoid, bacillar or filiform, continuous or septate.

- I. Pycnidia separate
  - 1. Pycnidia membranous or carbonous
    - a. Pycnidia superficial
      - (1) Pycnidia hairy
        - (a) Conidia single on the basidia Trichocollonema 18:404
        - (b) Conidia ternate on the basidia Gamospora 10:402
      - (2) Pycnidia smooth
        - (a) Pycnidia beaked Cornularia 3:598
        - (b) Pycnidia not beaked
        - x. Conidia usually expelled in a ball Collonema 10:397
        - y. Conidia not expelled in a ball Septorella 14:981
    - b. Pycnidia immersed or erumpent
      - (1) Pycnidia hairy, maculicole Trichoseptoria 11:548
      - (2) Pycnidia smooth
        - (a) Pycnidia beaked Sphaerographium 3:596
        - (b) Pycnidia not beaked
        - x. Pycnidia maculicole, phyllogenous Septoria 3:474
        - y. Pycnidia not maculicole
          - (x) Pycnidia complete at top, usually papillate Rhabdospora 3:578

- (y) Pycnidia more or less incomplete at top
  - m. Pycnidia gaping, showing a gelatinous spore mass  
**Gelatinosporium 3: 596**
  - n. Pycnidia not exposing a gelatinous mass
    - (m) Pycnidia foliicole **Phleospora 3: 577**
    - (n) Pycnidia rami-caulicole **Phlyctaena 3: 593**
- 2. Pycnidia suberose, incomplete, often pale
  - a. Pycnidia cespitose **Micropera 3: 604**
  - b. Pycnidia merely gregarious **Micula 3: 604**
- II. Pycnidia in a stroma
  - 1. Conidia 4-6 fasciculate on a basidium **Eriospora 3: 600**
  - 2. Conidia separate
    - a. Conidia setose-penicillate **Dilophospora 3: 600**
    - b. Conidia muticate
      - (1) Stroma superficial, setose **†Merodothidis 18: 405**  
**(Septodothideopsis)**
      - (2) Stroma erumpent or immersed
        - (a) Pycnidia distinct in the stroma **Cytosporina 3: 601**
        - (b) Pycnidia locules in the stroma **Septosporiella 10: 403**

### Family 71. ZYTHIACEAE

(Nectrioidaceae Sacc. 3: 613)

Pycnidia, and stromata when present, fleshy or waxy, light-colored, white, yellow, red or orange, globose, more rarely cup-shaped or hysterioid; conidia various, mostly hyaline.

#### Subfamily Zythiae

Pycnidia more or less globose

#### Hyalosporae

3: 613, 10: 404, 11: 552, 14: 988, 16: 983, 18: 407

- I. Pycnidia separate
  - 1. Pycnidia smooth
    - a. Pycnidia beakless
      - (1) Conidia in chains **Sirozythia 18: 410**
      - (2) Conidia not catenulate
        - (a) Pycnidia on creeping hyphae **Eurotiopsis 10: 406**
        - (b) Pycnidia without mycelium
          - x. Conidia spiny or ciliate
            - (x) Conidia spiny **Roumegueriella 3: 616**
            - (y) Conidia with several cilia at apex  
**Ciliospora 18: 410**
    - y. Conidia smooth
      - (x) Pycnidia single-walled
        - m. Pycnidia more or less papillate  
**Zythia 3: 614**

- n. Pycnidia with crateriform ostiole
  - Libertiella** 3:616
  - o. Pycnidia cup-shaped **Lemalis** 3:672
  - (y) Pycnidia with outer circumscissile wall
    - Dichlaena** 3:620
    - Sphaeronaemella** 3:617
  - b. Pycnidia beaked
- 2. Pycnidia hairy or spiny
  - a. Pycnidia densely beset with conoid 1-celled setae
    - Muricularia** 3:218
  - b. Pycnidia with slender bristles or hairs
    - (1) Hairs fasciculate **Collocystis** 3:616
    - (2) Hairs separate
      - (a) Hairs everywhere but at the apex
        - Chaetozythia** 10:406
        - Pseudozythia** 18:409
      - (b) Hairs only around the wide ostiole
- II. Pycnidia cespitose or in a stroma
  - 1. Pycnidia cespitose, beaked; conidia in chains
    - Trelesiella** 14:989
  - 2. Pycnidia in a stroma
    - a. Stroma more or less pulvinate; conidia fusoid
      - Aschersonia** 3:619
    - b. Stroma fruticose branched; conidia bacillar
      - Hypocreodendrum** 14:992

**Phaeosporae**

10:409, 18:416

Conidia dark, 1-celled, globose to oblong

- I. Pycnidia separate, beaked; basidia obsolete **Ampullaria** 18:416
- II. Pycnidia in a stroma **Martinella** 10:409

**Hyalodidymae**

3:621, 10:409, 11:553, 16:986, 18:416

Conidia hyaline or nearly so, 1-septate, ovoid to oblong

- I. Basidia simple or nearly so **Pseudodiplodia** 3:621
- II. Basidia dendroid branched **Diplozythia** 18:417

**Hyalophragmiae**

3:621, 10:410, 18:417

Conidia hyaline, several-septate, elliptic to fusoid

- I. Conidia oblong-fusoid **Stagonopsis** 3:621
- II. Conidia 4-radiate, with septate radii **Chiastospora** 3:621

**Scolecosporae**

3:622, 10:410, 18:418

Conidia hyaline, bacillar or filiform, continuous or septate

- I. Pycnidia separate

- |  |                             |
|--|-----------------------------|
| 1. Pycnidia beakless, almost discoid     | <i>Trichocrea</i> 10: 410   |
| 2. Pycnidia beaked; conidia 1-ciliate    | <i>Mycorhynchus</i> 18: 418 |
| II. Pycnidia in a stroma; conidia hamate | <i>Polystigmina</i> 3: 622  |

### Subfamily Patellinae

Pycnidia cupulate or hysterooid

### Hyalosporae

3: 622, 10: 411, 11: 553, 18: 419

Conidia hyaline, 1-celled, globose to oblong

- |   |  |
|---|--|
| I. Pycnidia separate                            |  |
| 1. Pycnidia cup-shaped                          |  |
| a. Pycnidia smooth                              |  |
| (1) Pycnidia carnose; basidia simple, cylindric | <i>Patellina</i> 3: 622                                    |
| (2) Pycnidia submembranous; basidia branched    | <i>Ollula</i> 10: 411                                      |
| b. Pycnidia hairy                               |  |
| (1) Conidia in chains                           | * <i>Sirocyphis</i>  |
| (2) Conidia not in chains                       | <i>Cyphina</i> 3: 623                                      |
| 2. Pycnidia flattened, oblong, cleft            | <i>Hysteromyxa</i> 3: 622                                  |
| II. Pycnidia in a stroma                        |  |
| 1. Stroma suberose, white                       | <i>Munkia</i> 10: 408                                      |
| 2. Stroma corneous, black                       | † <i>Pycnostroma</i> 18: 415<br>( <i>Aschersoniopsis</i> ) |

### Hyalophragmiae

11: 553

Conidia hyaline, several-septate, oblong

- |                            |                              |
|----------------------------|------------------------------|
| I. Pycnidia immersed, waxy | <i>Pseudostictis</i> 11: 553 |
|----------------------------|------------------------------|

### Scolecosporae

10: 411

Conidia hyaline, filiform, continuous

- |  |                             |
|--|-----------------------------|
| I. Pycnidia waxy, cup-shaped, on a white subicle | <i>Trichosperma</i> 10: 411 |
|--|-----------------------------|

## Family 72. LEPTOSTROMATACEAE

Pycnidia membranous or carbonous, black, more or less distinctly dimidiate, scutiform, astomous, ostiolate or cleft, erumpent or superficial.

### Hyalosporae

3: 625, 10: 412, 11: 553, 14: 992, 16: 986, 18: 419

Conidia hyaline, 1-celled, globose to oblong

- |  |  |
|--|--|
| I. Pycnidia separate                                       |  |
| 1. Pycnidia astomous or variously perforate, but not cleft |  |
| a. Basidia lacking   |  |

- (1) Pycnidia on a subicle
  - (a) Subicle of fumiginous hyphae **Eriothyrium 10: 418**
  - (b) Subicle of broad fibers **†Trichopeltium 10: 418**  
(**Trichopeltulum**)
- (2) Pycnidia without subicle
  - (a) Conidia muticate
    - x. Pycnidia stellately divided or cleft **Actinothecium 3: 638**
    - y. Pycnidia depressed-clypeate, not stellate
      - Leptothyrium 3: 626**  
(**Sacidium 3: 649**)
    - (b) Conidia setulose at each end **Tracyella 18: 424**
  - b. Basidia present, cylindric **Piggotia 3: 636**
  - 2. Pycnidia more or less clearly cleft lengthwise
    - a. Pycnidia elongate or lanceolate **Leptostroma 3: 639**
    - b. Pycnidia subcircular **Labrella 3: 647**
- II. Pycnidia in a stroma
  - 1. Stroma phyllogenous **Melasmia 3: 637**
  - 2. Stroma growing on animal hairs **Trichophila 10: 423**

**Phaeosporae**

3: 653, 10: 423, 14: 996, 18: 429

Conidia dark, 1-celled, globose to oblong

- I. Pycnidia separate
  - 1. Pycnidia on a dark subicle, radiately dehiscent **Asterostomella 10: 423**
  - 2. Pycnidia not on a subicle
    - a. Conidia conglobate, verrucose **Discomycopsella 18: 429**
    - b. Conidia not conglobate, smooth **Pirostoma 3: 653**
- II. Pycnidia in a stroma
  - 1. Stroma membranous
    - a. Pycnidia distinct, exserted **Peltostroma 18: 430**
    - b. Pycnidia merely locules, immersed **Lasmenia 10: 425**
  - 2. Stroma carbonous; locules many, immersed **Poropeltis 18: 430**

**Hyalodidymae**

10: 426, 11: 557, 18: 431

Conidia hyaline, 1-septate, oblong to fusoid

- I. Pycnidia separate
  - 1. Pycnidia astomous or variously perforate, not cleft
    - a. Conidia muticate **Leptothyrella 10: 426**
    - b. Conidia cuspidate at apex, falcate **Kabatia 18: 433**
  - 2. Pycnidia cleft lengthwise, elongate **Fioriella 18: 432**
- II. Pycnidia in a stroma, rimose **Pseudomelasmia 18: 434**

## LEPTOSTROMATACEAE

**Phaeodidymae**

10: 426, 18: 431

Conidia dark, 1-septate, oblong to fusoid

- I. Pycnidia separate
  - a. Pycnidia ostiolate **Diplopeltis** 10: 426
  - b. Pycnidia longitudinally cleft **Holcomyces** 18: 431
- II. Pycnidia in a stroma, ostiolate **Seynesiopsis** 18: 431

**Hyalophragmiae**

3: 653, 10: 426, 11: 557, 14: 996, 16: 992, 18: 434

Conidia hyaline, 2-several-septate, oblong to fusoid

- I. Pycnidia astomous or ostiolate, not cleft
  - 1. Conidia muticate; pycnidia with creeping hyphae **Asterothyrium** 18: 434
  - 2. Conidia ciliate
    - a. Conidia fusoid, 1-ciliate at each end **Discosia** 3: 653
    - b. Conidia cruciate, each arm 1-ciliate **Entomosporium** 3: 657
- II. Pycnidia rimose dehiscent **Cystothyrium** 10: 427

**Phaeophragmiae**

14: 997, 18: 435

Conidia dark, 1-several-septate, oblong to fusoid

- I. Pycnidia separate, rimose-gaping; conidia 1-ciliate each way **Labridium** 14: 997
- II. Pycnidia in a stroma; conidia muticate, finally black **Phragmopeltis** 18: 435

**Scolecosporae**

3: 658, 10: 428, 11: 557, 14: 997, 16: 992, 18: 436

Conidia normally hyaline, bacillar or filiform, continuous or septate

- I. Pycnidia astomous or opening variously
  - 1. Pycnidia with a round ostiole; conidia catenate **Crandallia** 14: 998
  - 2. Pycnidia astomous or irregularly dehiscent
    - a. Pycnidia with radiate-fimbriate margin **Actinothyrium** 3: 658
    - b. Pycnidia not radiate-fimbriate
      - (1) Pycnidia of two kinds, small simple and large loculate **Brunchorstia** 10: 431
      - (2) Pycnidia of one kind
        - (a) Conidia muticate
          - x. Pycnidia corrugate, not hairy; conidia not separating **Melophia** 3: 658
          - y. Pycnidia hairy; conidia separating into joints **Chaetopeltis** 14: 998
        - (b) Conidia ciliate-penicillate at apex **Giulia** 18: 435



## II. Pycnidia elongate, longitudinally cleft

- |                                 |                              |
|---------------------------------|------------------------------|
| 1. Basidia simple, bacillar     | <b>Leptostromella</b> 3: 659 |
| 2. Basidia umbellately branched | <b>*Petasodes</b> 14: 998    |

**Family 73. EXCIPULACEAE**

Pycnidia membranous or carbonous, black, cup-shaped, patellate or hysterioid, at first more or less spheric, but at length widely open, erumpent or superficial, glabrous or hairy.

**Hyalosporae**

3: 665, 10: 432, 11: 558, 14: 999, 16: 993, 18: 436

Conidia hyaline, 1-celled, globose to oblong

## I. Pycnidia pilose or setose

- |  |                             |
|--|-----------------------------|
| 1. Conidia muticate; pycnidia cupulate | <b>Amerosporium</b> 3: 680  |
| 2. Conidia ciliate; pycnidia cupulate  |                             |
| a. Conidia several-ciliate at apex     | <b>Polynema</b> 3: 687      |
| b. Conidia 1-ciliate at each end       | <b>Dinemasporium</b> 3: 683 |

## II. Pycnidia smooth or nearly so

- |  |                              |
|--|------------------------------|
| 1. Pycnidia more or less cup-shaped, or disciform              |                              |
| a. Pycnidia composed of conglutinate dark hyphae               | <b>Godroniella</b> 3: 665    |
| b. Pycnidia with cellular context                              |                              |
| (1) Pycnidia cup-like when mature, sometimes obconoid          |                              |
| (a) Basidia simple   |                              |
| x. Pycnidia cup-shaped   | <b>Excipula</b> 3: 665       |
| y. Pycnidia terete-conic                                       | <b>Catinula</b> 3: 673       |
| (b) Basidia branched   | <b>Heteropatella</b> 3: 670  |
| (2) Pycnidia subglobose-collabent, disciform or verruciform    |                              |
| (a) Pycnidia subglobose, irregularly dehiscent and collabent   | <b>Dothichiza</b> 3: 671     |
| (b) Pycnidia disciform, often imperfect and covered by epiderm | <b>Discula</b> 3: 674        |
| (c) Pycnidia verruciform; conidia mucose-involute              | <b>Agyriellopsis</b> 18: 438 |
| 2. Pycnidia hysterioid or valvately gaping                     |                              |
| a. Pycnidia widely hysterioid                                  | <b>Psilospora</b> 3: 679     |
| b. Pycnidia valvately gaping                                   |                              |
| (1) Basidia typically branched                                 | <b>Sporonema</b> 3: 677      |
| (2) Basidia simple or none                                     | <b>Pleococcum</b> 3: 679     |

**Phaeosporae**

10: 439, 18: 441

Conidia dark, 1-celled, globose to oblong

- |   |                             |
|---|-----------------------------|
| I. Pycnidia patellate, smooth             | <b>Phaeodiscula</b> 10: 439 |
| II. Pycnidia cupulate, setulose at margin | <b>†Coniothyris</b> 10: 439 |
|   | ( <b>Coniothyriella</b> )   |

**Hyalodidymae**

3: 687, 10: 440, 11: 560, 14: 1002, 16: 993, 18: 442

Conidia hyaline, 1-septate, oblong to fusoid

## I. Pycnidia discoid or patellate

1. Pycnidia discoid, veiled; basidia simple      **Discella** 3: 687
2. Pycnidia patellate, subsuperficial; basidia branched  
   **Pseudopatella** 3: 688

## II. Pycnidia hysterioid or irregularly gaping

1. Pycnidia hysterioid, elongate      **Scaphidium** 18: 443
2. Pycnidia globose, then irregularly gaping; conidia catenate  
   **Siropatella** 18: 443

**Hyalophragmiae**

3: 688, 10: 441, 11: 560, 14: 1002, 18: 443

Conidia hyaline, 2-several-septate, oblong to fusoid

## I. Pycnidia cupulate or subcupulate

1. Pycnidia smooth; conidia sometimes 1-ciliate  
   **Excipulina** 3: 688
2. Pycnidia setulose
  - a. Conidia fusoid, inner cells somewhat colored  
   **Excipularia** 3: 689
  - b. Conidia X-shaped, entirely hyaline      **Acanthothecium** 10: 442

## II. Pycnidia discoid and unequal, margin lacerate

**Pilidium** 3: 689**Phaeophragmiae**

10: 443, 18: 444

Conidia dark, 2-several-septate, oblong to fusoid

I. Pycnidia hysterioid; conidia not catenate      **Dichaenopsis** 18: 444

## II. Pycnidia laciniately dehiscent; conidia catenate

**Taeniophora** 10: 443**Scolecosporae**

3: 690, 10: 443, 14: 1002, 16: 993, 18: 445

Conidia typically hyaline, bacillar or filiform, continuous or septate

## I. Pycnidia separate

1. Conidia separating at the joints      **Schizothyrella** 3: 690  
   (incl. **Pseudocenangium** 10: 445)
2. Conidia not separating
  - a. Pycnidia discoid, margin lacerate; conidia filiform  
   **Protostegia** 3: 690
  - b. Pycnidia mostly cupulate, not lacerate; conidia hamate  
   **Oncospora** 3: 691

## II. Pycnidia in a stroma, pezizoid

**Ephelis** 3: 691

## Order 17. MELANCONIALES

## Family 74. MELANCONIACEAE

Pycnidia lacking, or reduced to a stratum merely; strata typically bearing basidia of various sorts upon which conidia arise, forming masses or acervuli, which are immersed or erumpent, black, gray or light-colored, waxy, corneous or even sub-membranous.

## Hyalosporae

3: 698, 10: 446, 11: 562, 14: 1004, 16: 995, 18: 447

Conidia hyaline, 1-celled, globose to oblong, rarely dilutely colored

## I. Conidia muticate

## 1. Masses, or acervuli, not setose

## a. Conidia not catenate

## (1) Masses bright-colored, subtremelloid

**Hainesia** 3: 698

## (2) Masses gray to black, rarely bright-colored, waxy or horny

## (a) Masses gray, rarely bright-colored, waxy

## x. Growing on leaves or fruits for the most part

**Gloeosporium** 3: 699

## y. Growing usually on twigs of trees or shrubs

**Myxosporium** 3: 722

## (b) Masses black, discoid, horny

**Melanostroma** 3: 728

## b. Conidia in chains

## (1) Masses oblong, hysteroioid, dark, hard

**Hypodermium** 3: 728

## (2) Masses discoid, pulvinate or conoid

## (a) Masses bright-colored, softish

**Myxosporella** 3: 729

## (b) Masses dark to black

## x. Basidia repeatedly branched

## (x) Masses discoid; basidia dichotomous

**Blennoria** 3: 730

## (y) Masses depressed-pulvinate; basidia verticillate

**Agyriella** 3: 731

## (z) Masses perithecioid; basidia irregularly branched

**\*Hormyllum** 3: 733

## y. Basidia simple

## (x) Masses perithecioid, black

**\*Thecostroma** 3: 752

## (y) Masses scutellate, olive or ashen

**Myxormia** 3: 734

## (z) Masses truncate, black below, pale above

**Bloxamia** 3: 734

## 2. Masses setose at margin; basidia short, fasciculate

**Colletotrichum** 3: 735

## II. Conidia aristate with a branched awn at apex

**Pestalozziella** 3: 737

**Phaeosporae**

3: 749, 10: 471, 11: 571, 14: 1018, 16: 1008, 18: 469

Conidia dark, 1-celled, globose to oblong or fusoid

**I. Conidia solitary on the basidia**1. Conidia globose or oblong **Melanconium 3: 749**

2. Conidia fusoid, often arcuate

a. Basidia not swollen at base **Cryptomela 3: 760**b. Basidia swollen at base **Basiascum 10: 474****II. Conidia in chains**1. Conidial chains separate **Trullula 3: 731**2. Conidial chains in a mucose head **Thyrsidium 3: 761****Hyalodidymae**

3: 766, 10: 475, 11: 572, 14: 1020, 16: 1009, 18: 472

Conidia hyaline or nearly so, 1-septate, ovoid to fusoid

**I. Conidia muticate**1. Saprogenous, on stems and fruits **Septomyxa 3: 766**2. Biogenous, typically on leaves **Marsonia 3: 767****II. Conidia 3-4-ciliate at each end** **Gloeosporiella 11: 575****Phaeodidymae**

3: 763, 10: 475, 11: 572, 14: 1029, 16: 1009

Conidia dark, 1-septate, ovoid to fusoid

**I. Conidia solitary**1. Conidia muticate **Didymosporium 3: 763**2. Conidia 1-3-ciliate at apex **Neobarclaya 14: 46, 10: 475****II. Conidia catenate, connected by hyaline isthmi****Bullaria 3: 766****Hyalophragmiae**

3: 801, 10: 480, 11: 575, 14: 1022, 16: 1012, 18: 474

Conidia hyaline, 2-several-septate, oblong to fusoid or clavate

**I. Conidia separate**

1. Conidia muticate

a. Conidia oblong or fusoid, masses usually pale **Septogloeum 3: 801**b. Conidia long-clavate; masses dark **Rhopalidium 3: 801**

2. Conidia 1-several-ciliate, usually at the apex

**Pestalozzina 11: 580****II. Conidia united at base into a radiate or stellate group****Prosthemidiella 3: 803**(incl. **Psammia 10: 498**)**Phaeophragmiae**

3: 771, 10: 480, 11: 575, 14: 1022, 16: 1012, 18: 475

Conidia dark, at least in part, 2-several-septate, oblong to cylindric

## I. Conidia muticate

## 1. Conidia separate, not in chains

## a. Conidia oblong or elongate

## (1) Conidia curved-attenuate, i. e., hyaline-rostrate

## (a) Conidia dark, except the hyaline beak

**Scolecosporium 3:782**

## (b) Conidia with 2 inner cells opaque, others clear

**Toxosporium 14:1030**

## (2) Conidia oblong, not rostrate

## (a) Conidia cirrhose protruded and atro-inquinant

**Stilbospora 3:771**

## (b) Conidia not protruded and atro-inquinant

**Coryneum 3:774**

## b. Conidia stellate-lobed, lobes several-septate

**Asterosporium 3:782**

## 2. Conidia in chains

## a. Conidia connected by filiform isthmi

**Siridium 3:782**

## b. Conidia chains without isthmi

**Siridiella 11:580**(incl. *Septotrullula* 18:487)

## II. Conidia ciliate

## 1. Conidia ciliate at apex alone

## a. Conidia 1-ciliate

**Monochaetia 18:485**

## b. Conidia several-ciliate

**Pestalozzia 3:784**

## 2. Conidia 1-ciliate at each end

**Hyaloceras 3:783**(incl. *Amphichaeta* 18:486)**Phaeodictyae**

3:803, 10:508, 11:565, 14:1035, 16:1022, 18:488

Conidia dark, muriform, ovoid or oblong

## I. Conidia muticate

## 1. Conidia not catenate

**Steganosporium 3:803**

## 2. Conidia catenate by cylindric isthmi

**Phragmotrichum 3:806**

## II. Conidia pluriciliate at apex; end cells subhyaline

**Morinia 10:508****Scolecosporae**

3:737, 10:498, 11:582, 14:1031, 16:1018, 18:488

Conidia cylindric, filiform or suballantoid, hyaline, mostly continuous

## I. Conidia allantoid

**Naemospora 3:746**

## II. Conidia bacillar to filiform

## 1. Conidia fasciculate at the apex of the basidia

**Trichodytes 14:1031**

## 2. Conidia solitary

## a. Masses white or pale, foliicole; conidia filiform

**Cylindrosporium 3:737, 18:491**

## b. Masses gray or dark, usually ramicole; conidia falcate

**Cryptosporium 3:740**

- c. Masses bright-colored, saprophytic; conidia falcate

**Libertella 3:744**

**Staurosporae**

18:493

Conidia star-shaped, hyaline

- I. Masses phyllogenous, bright-colored; conidia 4-radiate

**Asteroconium 18:493**

**Order 18. MONILIALES (Hyphomyceteae Sacc. 4:1)**

Hyphae more or less developed, cobwebby or more or less compacted, but rarely arising from a definite stratum or stroma, never enclosed in a pycnidium, typically superficial.

**Family 75. MONILIACEAE (Mucedineae 4:2)**

Hyphae hyaline or bright-colored, more or less fragile, lax, not cohering in fascicles; conidia concolorous, i. e., hyaline or bright-colored.

**Hyalosporae**

4:2, 10:510, 11:586, 14:1037, 16:1023, 18:495

Conidia hyaline, or bright-colored, 1-celled, globose, ovoid to short-cylindric

**Micronemeae**

Hyphae very short or obsolete, or little different from the conidia

- I. Conidia not in chains

1. Conidia solitary, at least not capitate

- a. Saprogenous

- (1) Hyphae none

- (a) Conidia separate

**Chromosporium 4:6**

- (b) Conidia joined in twos or threes, not catenate

**Selenotila 11:587**

- (2) Hyphae very short, branched, septate

**Coccospora 4:9**

- b. Entomogenous

**Massospora 4:10**

(incl. *Sorospora* 10:512)

- c. Phytogenous

- (1) In fungi

- (a) Conidia ovoid, smooth

**Myceliophthora 11:587**

- (b) Conidia globose, verrucose

**Coccosporella 11:586**

- (2) In leaves

- (a) Hyphae paliform, stipate, very short

**Microstroma 4:9**

- (b) Hyphae vermiform-tortuose; biophilous

**Ophiocladium 11:587**

2. Conidia capitate; hyphae lacking; biophilous

**Glomerularia 4:10**

## II. Conidia in chains

## 1. Saprophilous

## a. Conidial chains arising in the hyphae

(1) Conidial branches simple, arcuate **Malbranchea 4:11**

(2) Conidial branches dichotomous, not arcuate

**Glycophila 4:11**

## b. Chains arising at the apex of the hyphae

(1) Conidia globose, elliptic or fusiform

(a) Hyphae short, simple or nearly so

x. Conidia globose or suboblong **Oospora 4:11**y. Conidia fusoid, acute each way **Fusidium 4:25**

(b) Hyphae longer, distinctly branched

**Monilia 4:31**(incl. *Halobysus* 11:588)

(2) Conidia bacillar or cuboid

(a) Hyphae nearly obsolete; conidia bacillar

**Cylindrium 4:36**

(b) Hyphae distinctly present

x. Conidia bacillar

**Polyscytalum 4:38**

y. Conidia cuboid

**Geotrichum 4:39**

## 2. Biophilous

## a. Growing within leaf tissue

**Oidiopsis 18:507**

## b. Growing on leaves or other parts

(1) Conidia ellipsoid, without isthmi **Oidium 4:40**

(2) Conidia globose, connected by isthmi

**Paepalopsis 4:47****Macronemeae**

Hyphae elongate and distinct from the conidia

## I. Conidia in heads

**Cephalosporiae**

## 1. Conidia not catenulate

## a. Conidia globose or oblong

(1) Conidia sessile on the head or nearly so

(a) Fertile hyphae inflated at apex

x. Apical vesicle globose-inflated

(x) Conidia sessile, not mucus-covered

m. Vesicle verrucose or muriculate

(m) Fertile hyphae simple **Oedocephalum 4:47**

(n) Fertile hyphae sigmoid, much branched

**Sigmoideomyces 10:523**

n. Vesicle hexagonally areolate

**Rhopalomyces 4:50**

(y) Conidia on stalks, mucus-covered

**Gliocephalus 16:1031**

## y. Vesicle clavate or lobed

(x) Vesicle disk-shaped, stellate-lobed

**Coronella 4:51**

- (y) Vesicle clavate or subpalmate **Buseella 18: 509**
- (b) Fertile hyphae not inflated at apex
  - x. Conidial head covered with mucus
    - (x) Fertile hyphae simple **Hyalopus 4: 51**
    - (y) Fertile hyphae with verticillate branches at tip **Gliobotrys 18: 510**
  - y. Head without mucus
    - (x) Fertile hyphae with one head
      - m. Conidia not separating **Papulospora 4: 58**
      - n. Conidia separating
        - (m) Head elongate **Doratomyces 4: 53**
        - (n) Head globose or slightly clavate
          - r. Sterile hyphae scanty **Haplotrichum 4: 53**
          - s. Sterile hyphae long, decumbent **Cephalosporium 4: 56**
- (y) Fertile hyphae with 2-several heads
  - m. Conidia upright on verticillate basidia **Coemansiella 4: 55**
  - n. Conidia in more definite heads
    - (m) Fertile hyphae simple, with 3-several heads of conidia on spines **Botryosporium 4: 54**
    - (n) Fertile hyphae several times 2-3-fid **Trichoderma 4: 59**
- (2) Conidia borne on little stalks or sterigmata
  - (a) Fertile hyphae simple **Corethrospis 4: 62**
  - (b) Fertile hyphae verticillate branched **Spicularia 4: 63**
- b. Conidia short cylindric
  - (1) Conidia without mucus **Cylindrocephalum 4: 63**
  - (2) Conidia covered with mucus **Acontium 18: 512**
- 2. Conidia catenulate **Aspergillae**
  - a. Fertile hyphae inflated at apex
    - (1) Fertile hyphae simple or nearly so
      - (a) Sterigmata of apical vesicle none or simple
        - x. Conidia terminal on sterigmata **Aspergillus 4: 64**
        - y. Conidia lateral and terminal on sterigmata **Dimargaris 4: 76**
      - (b) Sterigmata verticillate branched **Sterigmatocystis 4: 71**  
(incl. **Alliospora 18: 516**)
    - (2) Fertile hyphae dichotomous, branches curved **Dispira 4: 77**
  - b. Fertile hyphae little or not at all inflated
    - (1) Fertile hyphae verticillately branched at tip
      - (a) Tips equally verticillate; conidia doliiform **Amblyosporium 4: 77**
      - (b) Tips unequally verticillate; conidia globoid



- x. Conidia without mucus **Penicillium 4: 78**  
(incl. *Citromyces* 11: 593)
  - y. Conidia enclosed in mucus **Gliocladium 4: 84**
- (2) Fertile hyphae not verticillate at tip  
**Briarea 4: 85**
- II. Conidia borne irregularly on simple or branched but not inflated or verticillate hyphae **Botrytidae**
- I. Conidia smooth or scarcely roughened
  - a. Saprogenous
    - (1) Conidia typically pleurogenous
      - (a) Fertile hyphae 2-several-furcate **Haplaria 4: 85**
      - (b) Fertile hyphae simple or nearly so
        - x. Conidia globose or ellipsoid **Acladium 4: 87**
        - y. Conidia short cylindric **Cylindrotrichum 4: 88**
    - (2) Conidia acrogenous or pleurogenous
      - (a) Some intermediate joints of the hyphae swollen and denticulate conidia-bearing **Physospora 4: 88**
      - (b) Intermediate joints equal
        - x. Conidia-bearing hyphae of two sorts, the upright alone denticulate **Blastomyces 10: 529**
        - y. Conidia-bearing hyphae of one sort
          - (x) Fertile hyphae simple or nearly so
            - m. Hyphae not denticulate; conidia solitary
              - (m) Hyphae forming a crust-like stratum **Hyphoderma 4: 89**
            - (n) Hyphae loose, cobwebby **Acremonium 4: 89**  
(incl. *Thermomyces* 18: 524)
      - n. Hyphae denticulate; conidia usually grouped
        - (m) Hyphae everywhere denticulate, bearing conidia only at tip **Xenopus 18: 524**
        - (n) Hyphae denticulate or proliferous at tip alone
          - r. Apex denticulate, many-spored **Rhinotrichum 4: 91**
          - s. Apex inflated-ampulliform, 1-spored **Olpitrichum 11: 594**
    - (y) Fertile hyphae branched
      - m. Conidia globose to ovoid
        - (m) Both sterile and fertile hyphae procumbent
          - r. Sterile hyphae intracellular **Hartigiella 16: 1031**
        - s. Sterile hyphae superficial
          - (r) Fertile hyphae vaguely branched
            - h. Conidia acro-pleurogenous **Sporotrichum 4: 96**  
(incl. *Leiosepium* 16: 1036)
      - i. Conidia on a one-sided sympodium **Monopodium 10: 544**

- (s) Fertile hyphae dichotomous; conidia acrogenous on spine-like branches **Langloisula** 10: 535
    - (n) Fertile hyphae erect or ascending
      - r. Conidia solitary acrogenous
        - (r) Fertile hyphae spiny-branched at apex **Plectothrix** 18: 525
        - (s) Fertile hyphae not spiny-branched **Monosporium** 4: 113  
(incl. *Allescheriella* 14: 1075)
      - s. Conidia loosely grouped about the apex
        - (r) Conidia not involved in mucus
          - h. Conidia on inflated muriculate apices **Phymatotrichum** 16: 1033
          - i. Apices not muriculate or inflated **Botrytis** 4: 116
        - (s) Conidia involved in mucus **Tolypomyria** 4: 137
    - n. Conidia fusoid to cylindric
      - (m) Fertile hyphae mostly procumbent **Sporotrichella** 10: 534
      - (n) Fertile hyphae erect or ascending
        - r. Conidia fusoid on the upper side of curved branches **Martensella** 4: 138
        - s. Conidia acrogenous
          - (r) Conidia-bearing branches terete **Cylindrophora** 4: 138
          - (s) Conidia-bearing branches ellipsoid **Cylindrodendrum** 4: 139
    - b. Biogenous
      - (1) Conidia smooth, solitary, more rarely subcatenate **Ovularia** 4: 139  
(incl. *Ovulariopsis* 16: 1036)
      - (2) Conidia densely spiny **Ramulaspera** 18: 532
  - 2. Conidia muricate or tuberculose-stellate
    - a. Conidia globose
      - (1) Conidia merely muricate
        - (a) Hyphae loose, cobwebby **Sepedonium** 4: 146
        - (b) Hyphae woven into a subgelatinous pellicle **Pellicularia** 4: 149
      - (2) Conidia setose at apex as well as muricate **Chaetoconidium** 10: 544
    - b. Conidia tuberculose-stellate **Asterophora** 4: 148
- III. Conidia acrogenous on verticillate branches **Verticilliae**
- 1. Conidia solitary or loosely grouped, not in chains

- a. Conidia-bearing branches very short, ampulliform  
**Pachybasium 4: 149**
  - b. Conidia-bearing branches terete or longer
    - (1) Conidia globose to ovoid
      - (a) Tips of branches clavate, in twos rectangularly  
**Verticilliosis 11: 600**
      - (b) Tips of branches normal
        - x. Conidia conglutinate into a stratum  
**Corymbomyces 18: 533**
      - y. Conidia not conglutinate
        - (x) Conidia separating readily from the tips  
**Verticillium 4: 150**
        - (y) Conidia separating with difficulty from the tips  
**Cladobotryum 4: 160**
    - (2) Conidia cylindric or elongate
      - (a) Conidia-bearing branches or sporophores 1-spored
        - x. Sporophores straight  
**Acrocyllidium 4: 161**
        - y. Sporophores uncinatate  
**Uncigera 4: 162**
      - (b) Sporophores several-spored
        - x. Sporophore inflated verrucose at apex  
**Calcarisporium 4: 162**
        - y. Sporophore incurved, with seriate conidia below  
**Coemansia 4: 162**
  - 2. Conidia capitate or densely spicate, not in chains
    - a. Conidia sessile
      - (1) Conidia capitate, involved in mucus
        - (a) Fertile hyphae smooth  
**Acrostalagmus 4: 163**  
(incl. *Harziella* 16: 1037)
        - (b) Fertile hyphae asperate  
**Gloeosphaera 18: 535**
      - (2) Conidia densely spirally spicate at apices  
**Clonostachys 4: 165**
    - b. Conidia on small stalks  
**Sceptromyces 4: 166**
  - 3. Conidia in chains  
**Spicaria 4: 166**  
(incl. *Nomuraea* 18: 533)
- IV. Joints of the hyphae inflated here and there and bearing pleurogenous conidia  
**Gonatobotrytae**
- 1. Joints smooth
    - a. Conidia catenulate  
**Gonatorrhodum 4: 169**
    - b. Conidia solitary  
**Nematogonium 4: 170**
  - 2. Joints muricate or punctate
    - a. Conidia solitary  
**Gonatobotrys 4: 168**
    - b. Conidia catenulate, forming a spheric head  
**Gonatorrhodiella 10: 548**
- Hyalodidymae**  
4: 176, 10: 548, 11: 600, 14: 1057, 16: 1038, 18: 539  
Conidia hyaline or bright-colored, 1-septate, ovoid oblong or short fusoid

## I. Conidia not in chains

## 1. Saprophilus

## a. Conidia smooth

## (1) Fertile hyphae simple or nearly so

## (a) Hyphae inflated at apex or joints

## x. Hyphae denticulate inflated at apex; conidia fusoid

**Diplorhinostrichum** 18: 540

## y. Hyphae inflated at both apex and joints

**Arthrobotrys** 4: 181

## (b) Hyphae not inflated

## x. Conidia spirally pleurogenous

**Haplariopsis** 18: 539

## y. Conidia solitary acrogenous or capitate

## (x) Conidia capitate at apex

**Cephalothecium** 4: 180

## (y) Conidia solitary at apex

## m. Fertile hyphae long

**Trichothecium** 4: 178

## n. Fertile hyphae very short

**Didymopsis** 4: 182

## (2) Fertile hyphae branched

## (a) Fertile hyphae irregularly branched

**Diplosporium** 4: 178

## (b) Fertile hyphae verticillate or dichotomous

## x. Fertile hyphae verticillate

**Diplocladium** 4: 176

## y. Fertile hyphae dichotomous; sterigmata subternate

**Cylindrocladium** 11: 600

## b. Conidia echinulate; conidial cells unequal

**Mycogone** 4: 183

## 2. Biophilous

## a. Conidia obliquely beaked

**Rhynchosporium** 18: 540

## b. Conidia not beaked

## (1) Hyphae mostly simple, not spirally twisted

**Didymaria** 4: 184

## (2) Hyphae simple, spirally twisted

**Bostrichonema** 4: 185

## II. Conidia catenulate

## 1. Fertile hyphae simple, short

**Hormiactis** 4: 186

## 2. Fertile hyphae verticillately branched

**Didymocladium** 4: 186**Hyalophragmiae**

4: 188, 10: 551, 11: 601, 14: 1059, 16: 1041, 18: 544

Conidia hyaline or bright-colored, 2-several-septate, oblong, fusoid or elongate

**Micronemeae**

Fertile hyphae very short and little different from the conidia

## I. Conidia in chains, cylindric or oblong

**Septocylindrium** 4: 223

## II. Conidia not in chains

## 1. Sporophore 3-celled, upper cell much inflated

**Milowia** 4: 222

## 2. Sporophore not inflated, sometimes obsolete

- a. Conidia ciliate at apex and upper septum **Mastigosporium 4: 220**
- b. Conidia not ciliate
  - (1) Hyphae lacking; conidia not aggregate **Fusoma 4: 220**
  - (2) Hyphae distinct; conidia aggregate
    - (a) Conidia in mucose glomerules **Rotaea 4: 222**
    - (b) Conidia in fascicles, not mucose **Paraspora 4: 222**

### Macronemeae

Fertile hyphae manifest and distinct from the conidia

- I. Saprophilous
  - 1. Conidia solitary or at least not capitate
    - a. Fertile hyphae simple
      - (1) Sterile hyphae lacking **Dactylella 4: 193**
      - (2) Sterile hyphae abundant **Monacrosporium 4: 193**
    - b. Fertile hyphae branched
      - (1) Hyphae verticillately branched **Dactylium 4: 188**
      - (2) Hyphae irregularly branched **Blastotrichum 4: 191**
  - 2. Conidia capitate
    - a. Fertile hyphae vesiculose at tip; fimicolae **Cephaliophora 18: 544**
    - b. Fertile hyphae not swollen
      - (1) Hyphae simple; sterile lacking **Dactylaria 4: 194**
      - (2) Hyphae verticillate; sterile hyphae present **Mucrosporium 4: 190**
- II. Biophilous
  - 1. Conidia mucose-conglobate, allantoid, often continuous **Allantospora 14: 1043**
  - 2. Conidia not mucose-conglobate
    - a. Conidia ciliate at apex **\*Trichoconis 18: 545**
    - b. Conidia not ciliate
      - (1) Conidia ovate-cylindric or elongate, often catenate **Ramularia 4: 196**
      - (2) Conidia obclavate-piriform **Piricularia 4: 217**
      - (3) Conidia long vermiform **Cercosporella 4: 218**

### Hyalodictyae

11: 608, 18: 561

Conidia hyaline, or bright-colored, muriform, ovoid to globose or cubic

- I. Hyphae much branched; conidia elliptic or globose, cells uniform **Stemphyliopsis 18: 561**
- II. Hyphae little branched; conidia six-lobed and sarciniform, central cell larger, colored, lobes hyaline **Synthetospora 11: 608**

### Staurosporae

4: 230, 10: 567, 11: 608, 14: 1067, 16: 1049, 18: 559

Conidia hyaline or bright-colored, stellate, radiate or forked, septate or continuous

- I. Hyphae lacking; conidia trident-shaped **Tridentaria 4: 231**
- II. Hyphae present
  - 1. Conidia globose to cylindric, permanently attached to 2-3 divergent sterigmata **Tetracladium 14: 1067**
  - 2. Conidia themselves stellate or radiate
    - a. Conidia bilobate-forked; lobes parallel, contiguous **Pedilospora 18: 559**
    - b. Conidia narrowly digitate **Prismaria 4: 230**
    - c. Conidia 3-4-radiate
      - (1) Conidia ciliate at the apex **Titaea 4: 231**
      - (2) Conidia muticate
        - (a) Conidia 3-radiate **Trinacrium 4: 231**
        - (b) Conidia 4-radiate
    - x. Fertile hyphae very short, simple **Tetracium 18: 560**
    - y. Fertile hyphae branched **Lemonniera 14: 1067**

**Helicosporae**

4: 233, 10: 568, 11: 608

Conidia hyaline or bright-colored, spirally curved, cylindric

- I. Hyphae very short; conidia spiral **Helicomycetes 4: 233**
- II. Hyphae various; conidia spirally twisted into a conic or ovate tube **Helicoum 11: 609**

**Family 76. DEMATIACEAE**

Hyphae dark or black, cobwebby, loose, usually rigid, not cohering in definite fascicles; conidia typically dark and concolorous, but sometimes the hyphae are dark and conidia clear, or the conidia dark and the hyphae clear. This family is parallel with the Moniliaceae and certain intermediate forms must be sought in both places.

**Amerosporae**

2: 235, 10: 569, 11: 610, 14: 1068, 16: 1059, 18: 563

Conidia dark, or sometimes hyaline but the hyphae then dark, 1-celled, globose to oblong.

**Micronemeae**

Hyphae very short or scarcely different from the conidia.

- I. Conidia not in chains
  - 1. Conidia globose to elliptic
    - a. Sterile hyphae nearly obsolete **Coniosporium 4: 238**
    - b. Sterile hyphae elongate **Cordella 10: 586**
  - 2. Conidia elongate, usually fusoid **Fusella 4: 246**
- II. Conidia in chains
  - 1. Conidia of two sorts, larger catenate, smaller glomerate **Heterobotrys 4: 267**
  - 2. Conidia all alike

- a. Hyphae dark
    - (1) Chains breaking up readily
      - (a) Conidia globose or ovoid **Torula 4: 247**
      - (b) Conidia clavate **Gongromeriza 4: 263**
    - (2) Chains breaking up with difficulty
      - (a) Chains curved **Gyroceras 4: 266**
      - (b) Chains straight or nearly so **Hormiscium 4: 263**
  - b. Hyphae hyaline **Torulina 18: 566**
- III. Conidia in heads or racemes; conidia usually piriform  
**Echinobotryum 4: 268**

### Macronemeae

Hyphae manifest and distinct from the conidia

#### I. Conidia dark, rarely subhyaline

##### i. Conidia not in chains

##### a. Conidia capitate

##### (1) Fertile hyphae simple, but often with short apical branches

##### (a) Hyphae with apical branches or basidia

##### x. Biophilous

**Periconiella 4: 275**

##### y. Saprophilous

##### (x) Apex with heterogeneous basidia

##### m. Apex swollen; basidia 3-4

**Haplobasidium 10: 578**

##### n. Apex not swollen; basidia many

**Stachybotrys 4: 269**

##### (y) Apex short-branched, rarely simple

##### m. Apex short-branched or simple

##### (m) Apex not swollen

**Periconia 4: 270**

##### (n) Apex swollen

**Stachybotryella 18: 570**

##### n. Apex capitate-branched; branches 2-3-furcate and spine-bearing

**Cephalotrichum 4: 275**

##### (b) Hyphae without apical branches or basidia

##### x. Conidia globose

**Trichobotrys 18: 571**

##### y. Conidia boat-shaped curved; hyphae dark-ringed

**Camptoum 4: 276**

##### z. Conidia fusoid, sometimes subhyaline

**Acrotheca 4: 276**

##### (2) Fertile hyphae branched below the apex

##### (a) Hyphae forked below apex; conidia oblong

**Synsporium 4: 278**

##### (b) Hyphae repeatedly dichotomous; conidia globose or elliptic

**Dicyma 18: 570**

##### b. Conidia verticillate-pleurogenous

##### (1) Hyphae dark nodose-inflated; conidia ovoid

**Gonatobotryum 4: 278**

##### (2) Hyphae hyaline, dark-ringed

##### (a) Conidia globose-angulose

**Goniosporium 4: 280**

##### (b) Conidia fusoid

**Arthrinium 4: 279**

- c. Conidia inserted irregularly
  - (1) Hyphae loose, typically saprogenous
    - (a) Hyphae vesiculose-inflated here and there
      - x. Conidia-bearing vesicles pleurogenous  
**Oedemium 4: 297**
      - y. Conidia-bearing vesicles acrogenous  
**Cystophora 4: 298**
    - (b) Hyphae not vesiculose-inflated
      - x. Fertile hyphae erect
        - (x) Branches circinate at apex; conidia mesogenous, muricate  
**Acrospira 4: 282, 14: 1056**
        - (y) Branches spirally twisted; conidia exogenous  
**Streptothrix 4: 282**
        - (z) Hyphae simple or with straight branches  
**Virgaria 4: 280**
      - y. All hyphae more or less creeping
        - (x) Branches curved or lash-like  
**Campsotrichum 4: 295**
        - (y) Branches not curved
          - m. Conidia spiny, rarely smooth  
**Zygodesmus 4: 283**
          - n. Conidia smooth
            - (m) Conidia sessile  
**Trichosporium 4: 288**
            - (n) Conidia on stalks or basidia
              - r. Conidia on tooth-like sterigmata  
**Rhinocladium 4: 295**
              - s. Conidia on jar-like basidia  
**Basisporium 18: 533**
  - (2) Hyphae forming a crust, biogenous  
**Glenospora 4: 298**
- d. Conidia solitary, acrogenous
  - (1) Fertile hyphae simple
    - (a) Sterile hyphae lacking
      - x. Fertile hyphae short and fascicled at base  
**Hadrotrichum 4: 301**
      - y. Fertile hyphae longer, separate  
**Monotospora 4: 299**
    - (b) Sterile hyphae present
      - x. Conidia with a loose hyaline membrane  
**†Phaeoconis 18: 571**  
**(Nigrospora)**
      - y. Conidia without a membrane
        - (x) Conidia with a large shining gutta  
**Sporoglena 14: 1074**
        - (y) Conidia without a shining gutta  
**Acremoniella 4: 302**  
**(incl. Cordella 10: 586)**



- (2) Hyphae branched; conidium at first enclosed in a vesicle from which it escapes at the apex **Conioscypha 18: 572**
2. Conidia in chains
- a. Sterile hyphae all creeping or obsolete
- (1) Conidia of two kinds; larger catenulate fuscous, smaller internal catenulate cylindric hyaline **Thielaviopsis 11: 612**
- (2) Conidia all alike
- (a) Conidia produced in the hyphae **Sporendonema 10: 515**
- (b) Conidia produced on the hyphae
- x. Fertile hyphae spirally twisted, forming a head of conidia **Helicocephalum 10: 512**
- y. Fertile hyphae not twisted
- (x) Fertile hyphae simple, not branched at tip
- m. Chains of conidia lateral **Dematium 4: 308**
- n. Chains terminal
- (m) Conidia without isthmi **Catenularia 4: 303**
- (n) Conidia connected by cylindric isthmi **Prophytroma 4: 309**
- (y) Fertile hyphae branched
- m. Hyphae dendroid **Hormodendrum 4: 310**
- n. Hyphae capitate branched at tip **Haplographium 4: 304**
- b. Some sterile hyphae erect and mixed with the fertile **Hormiactella 4: 311**
- II. Conidia hyaline or subhyaline
- I. Conidia acrogenous on short heteromorphic basidia at the lower part or at the base of erect hyphae
- a. Conidia capitate glomerate
- (1) Sterile hyphae simple and circinate at apex **Bolacotricha 4: 316**
- (2) Sterile hyphae much branched below **Myxotrichum 4: 317**
- b. Conidia not capitate
- (1) Conidia solitary
- (a) Eruptent; conidia fusoid, usually setose **Ellisiella 4: 315**
- (b) Superficial
- x. Sterile hyphae simple
- (x) Conidia globose **Botryotrichum 4: 313**
- (y) Conidia bacillar
- m. Sterile hyphae tortuous **Sarcopodium 4: 312**
- n. Sterile hyphae circinate at apex **Helicotrichum 4: 313**
- y. Sterile hyphae branched
- (x) Hyphae irregularly branched; basidia verticillate **Costantinella 16: 1054**
- (y) Hyphae repeatedly dichotomous

- m. Branches continuous; basidia terete, basal  
**Circinotrichum** 4: 314
  - n. Branches septate; basidia ampulliform, above base  
**Ceratocladium** 4: 315
  - (2) Conidia loosely catenate; conidia basilar, ovoid  
**Stirochaete** 4: 316
  - 2. Conidia on hyphae of the same kind
    - a. Conidia solitary, neither catenate or capitate
      - (1) Hyphae erect, simple
        - (a) Hyphae with a single lateral basidium near base  
**Zygosporium** 4: 328
        - (b) Hyphae with pleurogenous conidia  
**Chloridium** 4: 320
      - (2) Hyphae branched
        - (a) Hyphae erect, smooth
          - x. Hyphae verticillate branched **Verticicladium** 4: 327
          - y. Hyphae more or less irregularly branched
            - (x) Conidia ovoid **Mesobotrys** 4: 324
            - (y) Conidia cylindric **Chaetopsis** 4: 324
            - (z) Conidia falcate, sometimes ciliate  
**Menispora** 4: 325
        - (b) Hyphae somewhat decumbent, more or less spiny
          - x. Hyphae nodose-spiny here and there  
**Gonytrichum** 4: 329
          - y. Hyphae spiny but not swollen **Cladorrhinum** 4: 330
    - b. Conidia capitate
      - (1) Hyphae simple, with basidia only at the tip
        - (a) Conidia globose
          - x. Basidia verticillate **Fuckelina** 4: 330
          - y. Basidia irregular **Pimina** 16: 1054
        - (b) Conidia ovoid, mucose **Scopularia** 4: 330
      - (2) Hyphae more or less verticillate branched  
**Stachylidium** 4: 331
    - c. Conidia catenate, arising within the hyphae
      - (1) Conidia in simple chains **Chalara** 4: 333
      - (2) Conidia conglutinate into a long curl  
**Cirromyces** 18: 627
- Didymosporae**  
4: 341, 10: 595, 11: 616, 14: 1077, 16: 1056, 18: 575  
Conidia 1-celled, dark, more rarely hyaline, ovoid to oblong
- Micronemeae**  
Hyphae very short or scarcely different from the conidia.
- I. Conidia not in chains
    - 1. Hyphae lacking **Dicoccum** 4: 342
    - 2. Hyphae present, circinate **Cycloconium** 4: 343
  - II. Conidia in chains  
**Bispora** 4: 343

**Macronemeae**

Hyphae distinctly different from the conidia

**I. Conidia smooth, muticate****1. Conidia not capitate****a. Conidia more or less catenulate at first**

(1) Hyphae and conidia biform, the latter 1-celled dark or continuous hyaline

**Epochnium 4: 375**

(2) Hyphae and conidia uniform

(a) Hyphae here and there inflated

**Cladotrichum 4: 370**

(b) Hyphae not inflated

x. Hyphae erect; conidia long-catenate

**Diplococcium 4: 374**

y. Hyphae somewhat decumbent; conidia short-catenate or finally solitary

**Cladosporium 4: 350**

**b. Conidia not catenate**

(1) Hyphae beautifully flexuose-torulose

**Polythrincium 4: 350**

(2) Hyphae not torulose or flexuose

(a) Hyphae inflated at tip, branched

**Pseudobeltrania 18: 578**

(b) Hyphae not inflated, usually short and little branched

x. Conidia merely acrogenous

**Fusicladium 4: 345**

(incl. *Passalora* 4: 344)

y. Conidia acro-pleurogenous

**Scolecotrichum 4: 347**

**2. Conidia capitate**

**Cordana 4: 376**

**II. Conidia muriculate or ciliate****1. Conidia muriculate**

**Trichocladium 4: 376**

**2. Conidia ciliate at apex; fertile and sterile hyphae intermixed**

**Beltrania 4: 377**

**Phragmosporae**

4: 380, 10: 606, 11: 621, 14: 1082, 16: 1060, 18: 581

Conidia 2-several-septate, dark, rarely hyaline, ovoid to cylindric or vermicular

**Micronemeae**

Fertile hyphae very short or little different from the conidia

**I. Conidia not in chains****1. Conidia muticate**

a. Conidia united at base, fasciculate, cylindric

**Cryptocoryneum 4: 395**

**b. Conidia separate**

(1) Conidia ovoid to cylindric

(a) Saprogenous

**Clasterosporium 4: 382**

(b) Phyllogenous

**Stigmina 4: 394**

(2) Conidia fusoid-falcate

**Fusariella 4: 395**

**2. Conidia cuspidate or setose**

- a. Hyphae dichotomous and broadened at apex  
Urosporium 4: 397
  - b. Hyphae not dichotomous or broadened  
Ceratophorum 4: 395
- II. Conidia in chains
- 1. Conidia not connected by isthmi  
Septonema 4: 397
  - 2. Conidia connected by isthmi  
Polydesmus 4: 401

### Macronemeae

Fertile hyphae distinctly different from the conidia

- I. Conidia solitary or nearly so, acrogenous for the most part
- 1. Conidia muticate  
Heterosporium 4: 480
  - a. Conidia echinulate
  - b. Conidia smooth
    - (1) Biophilous
      - (a) Hyphae creeping, radiate  
Ophiotrichum 10: 617
      - (b) Hyphae ascending or erect
      - x. Conidia ovoid to oblong  
Napicladium 4: 481  
(incl. Cercosporidium 18: 594)
      - y. Conidia filiform or vermicular  
Cercospora 4: 431
    - (2) Saprophilous
      - (a) Hyphae rigid; conidia ovoid to elongate
        - x. Conidia ovoid  
Brachysporium 4: 423
        - y. Conidia elongate  
Helminthosporium 4: 402
      - (b) Hyphae flexuous, pannose  
Drepanospora 4: 430
  - 2. Conidia 1-3-ciliate at apex  
Camposporium 4: 482
- II. Conidia verticillate or capitate
- 1. Hyphae dark
    - a. Conidia acrogenous, forming a head
      - (1) Hyphae simple  
Acrothecium 4: 483
      - (2) Hyphae branched at the apex  
Atractina 18: 584
    - b. Conidia pleurogenous, somewhat verticillate
      - (1) Hyphae rostrate and naked at apex  
Rhynchomyces 18: 584
      - (2) Hyphae not rostrate at apex  
Spondylocladium 4: 482
  - 2. Hyphae hyaline or bright-colored, apex denticulate  
Neomichelia 18: 593
- III. Conidia catenate as a rule
- 1. Conidia arising from the interior of the hyphae  
Sporoschisma 4: 486
  - 2. Conidia arising from the apex, sometimes solitary  
Dendryphium 4: 487

### Dictyosporae

4: 496, 10: 665, 11: 632, 14: 1090, 16: 1075, 18: 612

Conidia dark, rarely hyaline, muriform, globose to oblong

**Micronemeae**

Hyphae very short or scarcely different from the conidia

- I. Conidia not in chains
  - 1. Conidia muticate
    - a. Conidia irregularly muriform or sarciniform
      - (1) Conidia with a conic point at each side  
**Oncopodium** 18: 616
      - (2) Conidia muticate
        - (a) Conidia globose to oblong
          - x. Conidia ovoid to oblong, loose **Sporodesmium** 4: 497
          - y. Conidia globose to ovoid, aggregated  
**Stigmella** 4: 507
        - (b) Conidia sarciniform, often coalescent  
**Coniothecium** 4: 508
    - b. Conidia as if composed of parallel chains of cells
      - (1) Chains of conidia never separating  
**Dictyosporium** 4: 513
      - (2) Chains of conidia separating  
**Spira** 4: 514
  - 2. Conidia corniculate at apex  
**Tetraploa** 4: 516
- II. Conidia in chains, often asperate or with isthmi  
**Sirodesmium** 4: 516

**Macronemeae**

Hyphae distinctly different from the conidia

- I. Conidia of the same form
  - 1. Conidia not in chains or capitate
    - a. Conidia bearing little conidia on their surface  
**Xenosporium** 18: 612
    - b. Conidia normal
      - (1) Hyphae alike
        - (a) Conidia cruciate-divided, verrucose  
†**Tetracoccosporis** 18: 617  
(**Tetracoccosporium**)
        - (b) Conidia muriform, typically smooth
          - x. Hyphae decumbent  
**Stemphylium** 4: 519
          - y. Hyphae erect or ascending
            - (x) Conidia globose, pleurogenous
              - m. Conidia around the apex of the hyphae  
**Coccosporium** 4: 542
              - n. Conidia conglobate around the base  
**Trichaeum** 4: 542
            - (y) Conidia ovoid to oblong, mostly acrogenous  
**Macrosporium** 4: 523  
(incl. **Mystrosporium** 4: 539)
      - (2) Hyphae of two kinds, longer sterile, shorter fertile  
**Septosporium** 4: 543
    - 2. Conidia capitate  
**Dactylosporium** 4: 545

## 3. Conidia catenate

- a. Hyphae velvety, erect, subsimple; conidia caudate

*Alternaria* 4: 545

- b. Hyphae crustose, various; conidia 2-celled; conidia-like ganglia sarciniform

*Fumago* 4: 547

## II. Conidia of two forms, dark sarciniform and subhyaline falcate

*Sarcinella* 4: 548**Staurosporae**

4: 552, 11: 639, 14: 1107, 16: 1181, 18: 625

Conidia forked or stellate, usually dark, septate or continuous

## I. Conidia of two forms, small fusoid hyaline, large lobate many-celled, brown

*Desmidiospora* 10: 568

## II. Conidia alike

1. Fertile hyphae present; conidia 3-4-radiate

*Triposporium* 4: 554

2. Fertile hyphae lacking

- a. Conidia on a cellular stroma, 2-4-digitate

*Chiromyces* 4: 554

- b. Cellular stroma lacking

- (1) Conidia 3-several-radiate; xylogenous

*Ceratosporium* 4: 552

- (2) Conidia 2-radiate; phyllogenous

*Hirudinaria* 4: 553**Scolecosporae**

Conidia long-filiform or vermicular

One genus

*Cercospora* 4: 431, 14: 1099**Helicosporae**

4: 557, 10: 680, 11: 638, 14: 1107, 16: 1081, 18: 624

Conidia cylindric, spiral or convolute, typically septate, dark or hyaline

## I. Hyphae obsolete

*Helicopsis* 10: 680

## II. Hyphae present

1. Conidia septate transversely

*Helicosporium* 4: 557

2. Conidia muriform

*Helicoma* 11: 638**Family 77. STILBACEAE**

Sterile hyphae creeping, scanty; fertile hyphae collected into stalk-like or stroma-like fascicles bearing conidia at the top, more rarely along the side, pale, bright-colored or dark.

**Hyalostilbae**

Hyphae and conidia pale or bright-colored, not dark or black

**Amerosporae**

4: 561, 10: 681, 11: 640, 14: 1107, 16: 1082, 18: 630

Conidia globose, elliptic or oblong, 1-celled, hyaline or pale, or bright-colored

## I. Conidial part distinctly capitate or at least terminal

1. Conidia not in chains
  - a. Head of conidia not gaping or splitting above
    - (1) Head not spiny
      - (a) Conidiophores of head normal
        - x. Conidia covered with mucus
          - (x) Synnema monocephalous
            - m. Conidiophores dendroid-verticillate
              - (m) Without distinct sterigmata
 

**Dendrostilbella** 18: 635
              - (n) With obpiriform sterigmata
 

**Pirobasidium** 18: 638
            - n. Conidiophores not dendroid-verticillate
 

**Stilbum** 4: 564
          - (y) Synnema polycephalous
            - m. Capitula on extremely short branches
 

**Polycephalum** 4: 575
            - n. Capitula on spreading subulate branches
 

**Tilachlidium** 4: 576
            - o. Capitula on erect branches
 

**Corallodendrum** 4: 576
      - y. Conidia without mucus
        - (x) Synnema monocephalous
          - m. Conidiophores spirally twisted
 

**Martindalia** 4: 578
          - n. Conidiophores more or less straight
            - (m) Conidia rhombic or biconic
 

**Rhombostilbella** 18: 636
            - (n) Conidia globose to fusoid
 

**Ciliciopodium** 4: 577  
(incl. *Clavularia* 10: 686)
        - (y) Synnema polycephalous
          - m. Terrestrial, large, 1-2 cm.; conidia ovoid
 

**Macrostilbum** 16: 1083
          - n. Small, not terrestrial; conidia elongate-ovate
 

**Chondromyces** 4: 576
      - (b) Conidiophores conidium-like, septate; monocephalous
 

**Atractiella** 4: 578
    - (2) Head spiny with radiating spicules
      - (a) Spicules conic, granulate
 

**Actiniceps** 4: 579
      - (b) Spicules with many curved branches at middle
 

**Heterocephalum** 18: 642
  - b. Head of conidia persistent below, splitting above
 

**Pilacre** 4: 579
2. Conidia in chains
  - a. Synnema with conidia above; conidia without mucus
    - (1) Synnema not pubescent
 

**Coremium** 4: 581  
(incl. *Pritzeiella* 18: 644)
    - (2) Synnema pubescent
 

**Lasioderma** 4: 584
  - b. Synnema with conidia below; conidia with mucus
 

**Microspatha** 10: 687

## II. Conidial part cylindric or long-clavate

## 1. Conidia more or less equally scattered

## a. Biophilous; sterigmata denticulate branched

**Cladosterigma 11: 640**

## b. Saprophilous; sterigmata none or simple

**Isaria 4: 584**

## 2. Conidia in lateral heads or racemes

## a. Conidia in racemes; synnema lobate

**Peribotryum 4: 595**

## b. Conidia in heads

## (1) Conidiophores with lateral nodes, usually escaping through the stomata

**Helostroma 18: 630**

## (2) Conidiophores without nodes, usually entomophilous

**Gibellula 11: 643****Didymosporae**

18: 645

Conidia 2-celled, hyaline, globose to oblong

## I. Synnema cylindric, fimbriate at apex; conidia oblong

**Didymobotryopsis 18: 645**

## II. Synnema capitate; conidia fusoid

**Didymostilbe 18: 645****Phragmosporae**

4: 598, 10: 691, 14: 1109, 18: 646

Conidia 2-several-septate, hyaline, oblong to bacillar

## I. Conidia solitary

## 1. Conidia bacillar, aristate above, separating at joints

**Stilbomyces 14: 1109**

## 2. Conidia not aristate or separating

## a. Conidia oblong

**Arthrosporium 4: 598**

## b. Conidia elongate-falcate

**Atractium 4: 599**

## II. Conidia catenate, cylindric

**Symphyosira 4: 600****Helicosporae**

18: 658

Conidia filiform, spirally twisted

## I. Synnema erect, setose

**Helicostilbe 18: 657****Phaeostilbae**

Hyphae and conidia or one or the other dark

**Amerosporae**

4: 603, 10: 692, 11: 643, 14: 1109, 16: 1086, 18: 648

Conidia 1-celled, dark, globose to elongate

## I. Conidia not in chains

## 1. Synnema setose

**Saccardaea 11: 643**

## 2. Synnema naked

## a. Conidia asperate, on minute basidia

**Basidiella 10: 698**



## b. Conidia smooth

- (1) Synnema carnose, racemose-branched

**Stilbothamnium 14: 1110**

- (2) Synnema fibrous or corneous, not racemose

- (a) Basidia lageniform

**Ceratocladium 18: 649**

- (b) Basidia lacking, at least not lageniform

- x. Synnema stalked, fibrous

- (x) Conidia dark, globose to elliptic

**Sporocybe 4: 604**

- (y) Conidia hyaline

- m. Conidia ovoid to oblong

**Graphium 4: 609**

- n. Conidia elongate or falcate

**Harpographium 4: 619**

- y. Synnema sessile, corneous

**Glutinium 4: 620**

## II. Conidia in chains

1. Synnema setose

**Trichurus 14: 1112**

2. Synnema not setose

- a. Stalk scopulate branched above

**Stemmaria 10: 696**

- b. Stalk simple or nearly so

- (1) Capitule loose

- (a) Base of synnema subequal; usually on stems

**Stysanus 4: 620**

- (b) Base of synnema perithecioid; usually on leaves

**Graphiothecium 4: 624**

- (2) Capitule compact

- (a) Conidia globose

- x. Conidia echinulate

**Harpocephalum 14: 1111**

- y. Conidia smooth

- (x) Conidia pleurogenous

**Heydenia 4: 625**

- (y) Conidia acrogenous

**Briosia 10: 698**

- (b) Conidia ovoid to oblong

**Antromycopsis 14: 1113****Didymosporae**

4: 626, 10: 699, 18: 654

Conidia 1-septate, dark or hyaline, oblong to cylindric

- I. Conidia muticate

**Didymobotryum 4: 626**

- II. Conidia 1-ciliate at apex

**Hoehneliella 18: 654****Phragmosporae**

4: 627, 10: 699, 11: 644, 14: 1113, 16: 1089, 18: 655

Conidia 2-several-septate, dark or hyaline, oblong to cylindric

- I. Conidia capitate

1. Synnema simple

- a. Synnema black; conidia densely capitate

**Arthrobotryum 4: 628**

- b. Synnema fuscous or pale; conidia loosely capitate

**Isariopsis 4: 630**

2. Synnema dendroid branched

**Xylocladium 16: 1089**

## II. Conidia not capitate

## 1. Conidia catenulate

**Dendrographium 11: 644**

## 2. Conidia not catenulate

## a. Stalk fibrous

(1) Synnema simple or branched; conidia acro-pleurogenous

**Podosporium 4: 627**

(2) Synnema branched; conidia acrogenous

**Negeriella 14: 1114**

## b. Stalk parenchyma-like

(1) Conidia pleurogenous, on a disk

**Riccoa 18: 656**

(2) Conidia acrogenous

**Podosporella 11: 644****Dictyosporae**

4: 632

Conidia muriform, dark or hyaline, oblong

## 1. Synnema stalked, capitate

**Sclerographium 4: 632****Staurosporae**

## 1. Conidia of 4-5-radiate cells, hyaline

**Riessia 4: 627****Family 78. TUBERCULARIACEAE**

Hyphae compacted into a globose, discoid or verruciform body or sporodochium; sporodochia typically sessile, waxy or subgelatinous, white, bright-colored or dark to black.

**Mucedinae**

Hyphae and conidia white or bright-colored

**Amerosporae**

4: 635, 10: 700, 11: 645, 14: 1115, 16: 1090, 18: 658

Conidia hyaline or bright-colored, 1-celled, globose to fusoid

## 1. Sporodochia smooth or nearly so

## 1. Conidiophores normal

## a. Conidia muticate

(1) Conidia not covered with mucus

(a) Conidia not acrogenous capitate

x. Sporodochium girt by a heterogeneous cup

**Patellina 4: 677**

y. Sporodochium without a heterogeneous cup

(x) Conidia not catenate or scarcely so

m. Conidia escaping from interior of hyphae

(m) Conidiophores branched **Endoconidium 10: 708**(n) Conidiophores simple **Trichotheca 10: 714**

n. Conidia arising on outside of hyphae

(m) Conidiophores lacking

r. Conidia large, pellucid

(r) Conidia globose

**Sphaerosporium 4: 664**

(s) Conidia oval

**Diaphanium 4: 672**

s. Conidia small, not pellucid

**Pactilia 4: 672**

- (n) Conidiophores present
  - r. Conidia pleurogenous or acro-pleurogenous
    - (r) Conidia globose **Beniowskia** 16: 1091
    - (s) Conidia ovoid to oblong
      - Tubercularia** 4: 638
    - (t) Conidia fusoid to cylindric
      - Fusicolla** 4: 664
  - s. Conidia acrogenous
    - (r) Conidiophores verrucose
      - Dacrymycella** 4: 671
    - (s) Conidiophores not verrucose
      - h. Uredinicole **Tuberculina** 4: 653
      - i. Not uredinicole
        - (h) Sporodochia globose
          - + . Conidia globose; conidiophores short
            - Aegerita** 4: 661
          - . Conidia ovoid; conidiophores branched
            - Granularia** 4: 649
        - (i) Sporodochia pulvinate
          - + . Conidia acicular
            - Kmetia** 16: 1158
          - . Conidia terete-oblong
            - Bactridiopsis** 18: 662
        - (j) Sporodochia disk-shaped, or cupulate
          - + . Sporodochia disk-shaped
            - Hymenula** 4: 667
            - (**Hymenella** 16: 1105)
          - . Sporodochia cupulate
            - Hyphostereum** 11: 649
        - (k) Sporodochia verruciform or effuse
          - + . Conidiophores simple
            - (+) Conidiophores radiate, united at base
              - Clinoconidium** 16: 1093
            - (—) Conidiophores not united or radiate
              - Sphacelia** 4: 666
          - . Conidiophores dendroid branched
            - Dendrodochium** 4: 650
- (y) Conidia in chains
  - m. Conidia covered with mucus
    - Collodoichium** 18: 661
  - n. Conidia without mucus
    - (m) Conidia globose
      - r. Conidia hyaline **Sphaerocolla** 11: 648
      - s. Conidia blue **Sporoderma** 4: 676
    - (n) Conidia elliptic to oblong
      - r. Sporodochium disk-shaped, orange-red
        - Necator** 16: 1094
      - s. Sporodochium subglobose, whitish
        - Patouillardia** 4: 677

- (o) Conidia cylindric
      - r. Sporodochium dilated above, stalked
        - Bizzozzeriella** 10: 716
      - s. Sporodochia globose to verruciform
        - (r) Sporodochia gelatinous, sessile
          - Cylindrocolla** 4: 673
        - (s) Sporodochia not gelatinous, short-stalked
          - Sphaeridium** 4: 675
      - (b) Conidia acrogenous capitate; sporodochia turbinate
        - Cephalodochium** 4: 678
    - (2) Conidia covered with mucus
      - (a) Sporodochium globose, hardened
        - Thecospora** 4: 679
      - (b) Sporodochia verruciform or discoid, gelatinous or waxy
        - x. Sporodochia verruciform or subeffuse
          - Illosporium** 4: 656
          - (incl. **Myxonema** 10: 714)
        - y. Sporodochia discoid
          - Epidochiopsis** 11: 648
    - b. Conidia ciliate
      - (1) Conidia 1-ciliate at base only
        - Stigmatella** 4: 679
      - (2) Conidia ciliate at both ends
        - (a) Conidia 1-ciliate at each end
          - Thozetia** 4: 679
        - (b) Conidia 7-8-ciliate at each end
          - Chaetospermum** 10: 706
    - 2. Conidiophores with internal conidia-bearing areoles
      - Scoriomyces** 4: 680
  - II. Sporodochia setulose, ciliate or uniformly woolly
    - 1. Sporodochia woolly or setulose
      - a. Sporodochia setulose; conidia catenate
        - Periola** 4: 681
      - b. Sporodochia woolly or velvety; conidia capitate
        - (1) Conidia globose
          - Dacryodochium** 14: 1122
        - (2) Conidia oblong
          - Lachnodochium** 14: 1122
      - 2. Sporodochia ciliate at the margin
        - a. Sporophores none; conidia coacervate
          - Volutellaria** 4: 682
        - b. Sporophores distinct
          - (1) Conidia in chains
            - Volutina** 18: 667
          - (2) Conidia not in chains
            - (a) Conidiophores 6-ciliate above, united below
              - Guelichia** 10: 720
            - (b) Conidiophores not ciliate or united
              - Volutella** 4: 682

### Didymosporae

4: 690, 10: 721, 18: 668

Conidia 1-septate, hyaline or bright-colored

- I. Conidia in chains
  - 1. Sporodochia setulose
    - Endodesmia** 4: 691
  - 2. Sporodochia smooth
    - Gymnodochium** 18: 668

## II. Conidia not in chains

1. Sporodochia setulose

**Leptotrichum 4: 690**

2. Sporodochia smooth

a. Conidia verrucose

**Cosmariospora 4: 690**

b. Conidia smooth

**Patouillardella 10: 721****Phragmosporae**

4: 691, 10: 721, 11: 649, 14: 1123, 16: 1097, 18: 669

Conidia 2-several-septate, hyaline or bright-colored, fusoid to falcate (in *Fusarium* sometimes short and simple).

I. Conidia somewhat catenate, cylindric

**Discocolla 11: 653**

II. Conidia rarely catenate

1. Conidia cruciately 4-celled; sporodochium gelatinous

**Sarcinodochium 18: 677**

2. Conidia not cruciate

a. Conidiophores short, simple

(1) Conidia very large, terete-oblong

**Bactridium 4: 691**

(2) Conidia doliiform

**Pithomyces 4: 693**

b. Conidiophores more or less branched

(1) Conidiophores dichotomous; conidia key-like

**Heliscus 4: 693**

(2) Conidiophores usually verticillately branched; conidia usually falcate, sometimes oblong

(a) Sporodochium gelatinous

**Pionnotes 4: 725**

(b) Sporodochium waxy or byssoid

**Fusarium 4: 694**(incl. *Microcera* 4: 727)**Dictyosporae**

18: 676

Conidia muriform, hyaline, subglobose

I. Sporodochia globose

**Sporocystis 18: 676****Staurosporae**

4: 728, 16: 1104, 18: 677

Conidia forked or cruciate, hyaline or bright-colored

I. Conidiophores simple; conidia horseshoe-like

**Lituaría 4: 728**

II. Conidiophores branched

1. Conidia with short irregular branches or lobes

**Aegeritopsis 18: 677**

2. Conidia forked or cruciate

a. Conidia 2-forked, septate

**Dicranidium 4: 728**

b. Conidia 3-forked or subcruciate, continuous

**Triglyphium 4: 728****Helicosporae**

4: 729, 10: 732, 11: 653, 18: 678

Conidia spirally convolute

- I. Conidiophores lacking **Everhartia 4: 729**
- II. Conidiophores present
1. Conidia continuous **Troposporium 4: 729**
2. Conidia septate **Hobsonia 11: 653**

### Dematiace

Hyphae olive, to brown or black; conidia concolorous, rarely hyaline

### Amerosporae

4: 736, 10: 732, 11: 654, 14: 1129, 16: 1104, 18: 678

Conidia 1-celled, globose to elongate, sometimes unequal

- I. Conidia not in chains
1. Sporodochia not setose
- a. Conidiophores lacking
- (1) Lichenicole **Spilomium 18: 678**
- (2) Not lichenicole
- (a) Sporodochia gelatinous; conidia globose, vesiculose **Myriophysa 4: 742**
- (b) Sporodochia not gelatinous
- x. Sporodochia hemispheric, with a stratum of conidia **Spermodermia 4: 742**
- y. Sporodochia disk-like, applanate **Sclerodiscus 10: 735**
- b. Conidiophores present
- (1) Sporodochia thick, tremelloid **Epidochium 4: 747**
- (2) Sporodochia not tremelloid
- (a) Conidiophores with a slender apical appendage; conidia globose **Bonplandiella 10: 732**
- (b) Conidiophores not appendaged
- x. Conidia globose
- (x) Sporodochia cellular, uniform **Epicoccum 4: 736**
- (y) Sporodochia of three hyphal layers **Triplicaria 10: 734**
- y. Conidia ovoid to bacillar
- (x) Conidiophores bacillar; sporodochia subdiscoid **Hymenopsis 4: 744**
- (y) Conidiophores branched
- m. No brown radiate hyphae at base **Strumella 4: 742**
- n. Brown radiate hyphae at base **Astrodochilum 14: 1117**
2. Sporodochia ciliate or with exerted hyphae
- a. Sporodochia with loose exerted conidiophores, verruciform **Trichostroma 4: 752**
- b. Sporodochia margined with hairs or setae
- (1) Setae dark **Chaetostroma 4: 749**
- (2) Setae or hairs white **Myrothecium 4: 750**

## II. Conidia in chains

- |                                |                             |
|--------------------------------|-----------------------------|
| 1. Conidiophores lacking       | <b>Exosporina</b> 18: 684   |
| 2. Conidiophores present       |                             |
| a. Sporodochium tremelloid     | <b>*Hormodochis</b> 4: 749  |
| b. Sporodochium not tremelloid |                             |
| (1) Sporodochium ciliate       | <b>*Chaetodochis</b> 4: 750 |
| (2) Sporodochium not ciliate   |                             |
| (a) Sporodochia globose        | <b>Sphaeromyces</b> 4: 753  |
| (b) Sporodochia stellate       | <b>Actinomma</b> 4: 753     |

**Didymosporae**

4: 754, 10: 737, 16: 1105, 18: 684

Conidia 1-septate, typically dark, elliptic to fusoid

- |                                     |                             |
|-------------------------------------|-----------------------------|
| I. Sporodochia lichenicole, globose | <b>Sclerococcum</b> 4: 754  |
| II. Sporodochia not lichenicole     |                             |
| I. Sporodochia foliicole            |                             |
| a. Sporodochia annuliform asteroid  | <b>Hyphaster</b> 18: 685    |
| b. Sporodochia subglobose           | <b>Pucciniopsis</b> 10: 737 |
| 2. Sporodochia lignicole            | <b>Epiclinium</b> 4: 754    |

**Phragmosporae**

4: 755, 10: 738, 11: 656, 14: 1131, 16: 1106, 18: 685

Conidia 2-several-septate, usually colored, oblong to cylindric

- |   |                                    |
|---|------------------------------------|
| I. Conidia in chains; sporodochium discoid              | <b>Trimmatostroma</b> 4: 757       |
| II. Conidia not in chains                               |                                    |
| 1. Conidia 1-ciliate at each end                        | <b>Ciliofusarium</b> 11: 656       |
| 2. Conidia muticate                                     |                                    |
| a. Sporodochium hairy                                   | <b>Excipularia</b> 18: 688, 3: 689 |
| b. Sporodochium smooth                                  |                                    |
| (1) Conidia laterally proliferate and joined in bundles | <b>Amallospora</b> 14: 1131        |
| (2) Conidia not proliferate and united                  |                                    |
| (a) Sporodochia convex-pulvinate                        | <b>Exosporium</b> 4: 755           |
| (b) Sporodochia vertically cylindric or clavate         | <b>Listeromyces</b> 18: 685        |

**Dictyosporae**

4: 758, 10: 739, 11: 656, 14: 1131, 16: 1107, 18: 689

Conidia muriform, usually dark

- |                           |                                |
|---------------------------|--------------------------------|
| I. Conidia in chains      | <b>Bonordeniella</b> 18: 689   |
| II. Conidia not in chains |                                |
| 1. Sporodochia setulose   | <b>Chaetostromella</b> 11: 656 |
| 2. Sporodochia smooth     | <b>Spegazzinia</b> 4: 758      |

**Scolecosporae**

18: 689

Conidia filiform, hyaline

- |                                  |                              |
|----------------------------------|------------------------------|
| I. Sporodochia globose, setulose | <b>Schizotrichum</b> 18: 688 |
|----------------------------------|------------------------------|

**Staurosporae**

4: 753

Conidia angulose-stellate, hyaline

I. Sporodochia scutellate, pilose

**Stephanoma 4: 753****Helicosporae**

11: 654

Conidia spirally twisted, smoky

I. Sporodochia pulvinate

**Troposporella 11: 654****Sterile Mycelia**

14: 1138, 16: 1108, 18: 690

Conidia permanently absent so far as known

I. Parasitic on algae

**Lepraria, Pulveraria, etc. Z. 239**

II. Not parasitic on algae

1. Tubercle-like

a. Tubercles connected with fibrils

**Rhizoctonia 14: 1175****(Coccobotrys 16: 1108)**

b. Tubercles without fibrils

(1) Cortex discrete

**Acinula 14: 1174**

(2) Cortex not discrete

**Sclerotium 14: 1139**

2. Maculiform; black stromata in leaves and stems

**Ectostroma 14: 1177**

3. Root-like

a. Filaments rigid, broad, terete or depressed, dark, white within

**Rhizomorpha 14: 1180**

b. Filaments rigid, capilliform, dark, closely adhering

**Capillaria 14: 1184**

4. Clavariform; filaments terete, vertical, simple or branched

**Anthina 14: 1184**

5. Cobwebby or byssoid

a. Cespitose interwoven, primary hyphae joined in bundles

**Ozonium 14: 1187**

b. Cespitose interwoven, hyphae not fasciculate, black

**Rhacodium 14: 1189**

c. Cobwebby, soft, fleeting, white or pale

**Hypha 14: 1192**

d. Adpressed, creeping, dendritic, white to brownish, not forming a continuous membrane

**Himantia 14: 1194**

6. Membrane-like; densely interwoven, forming a continuous suberose or coriaceous membrane

**Xylostroma 14: 1197**

7. Deformed, discolored corky cells of plants

**Phloeoconis 14: 1197**



## Key to Spore Sections

- Amerosporae: spores one-celled, not stellate or spiral
  - Allantosporae: spores sausage-shaped, mostly clear
  - Hyalosporae: spores hyaline or clear, globose to oblong
  - Phaeosporae: spores dark, yellow, brown or black, globose to oblong
  - Leucosporae: spores clear, rarely faintly colored
  - Rhodosporae: spores rose-colored
  - Ochrosporae: spores yellow to yellow-brown
  - Melanosporae: spores dark purple to black
- Didymosporae: spores 1-septate or 2-celled
  - Hyalodidymae: spores hyaline, 2-celled
  - Phaeodidymae: spores dark, 2-celled
- Phragmosporae: spores few-many-transeptate, 3-many-celled
  - Hyalophragmiae: spores hyaline, 3-many-celled
  - Phaeophragmiae: spores dark, 3-many-celled
- Dictyosporae: spores septate crosswise and lengthwise, i. e., muriform
  - Hyalodictyae: spores hyaline, muriform
  - Phaeodictyae: spores dark, muriform
- Scolecosporae: spores needle-shaped to filiform, continuous or septate
  - Hyaloscoleciae: spores hyaline, filiform
  - Phaeoscoleciae: spores dark, filiform
- Staurosporae: spores stellate or radiate, hyaline or dark, continuous or septate
- Helicosporae: spores spirally twisted, hyaline or dark, continuous or septate



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## Glossary of Latin and English Terms

### A

- a**, without (in comp.)  
**ab**, from  
**abbreviatus**, shortened  
**abeuns**, deviating  
**abhorreo**, abhor, differ from  
**abiegnus**, fir  
**abietinus**, fir  
**abnormis**, abnormal  
**abortivus**, abortive  
**abortus**, aborted  
**abrupte**, abruptly  
**abundans**, abundant  
**abunde**, abundantly  
**ac**, and  
**acaudatus**, without a tail  
**accedo**, to approach  
**accessory**, additional  
**accipio**, to accept  
**acerinus**, maple  
**acervulatus**, heaped, massed  
**acervulus**, **i**, **m.**, a little heap  
**acervus**, **i**, **m.**, a heap  
**achromaticus**, without color  
**achrous**, colorless  
**acicularis**, acicular, needle-shaped  
**acidulus**, slightly acid  
**acies**, **ei**, **f.**, edge  
**acotyledon**, **nis**, **m.**, cryptogam  
**acquirō**, to acquire  
**acrogenus**, acrogenous, borne at tip  
**acropleurogenus**, borne at the tip and  
     on the sides  
**acris**, sharp  
**aculeatus**, spiny, pointed  
**aculeolatus**, spiny, pointed  
**acuminatus**, long-pointed  
**acus**, **us**, **f.**, needle  
**acutatus**, acute  
**acutiusculus**, somewhat acute  
**acutus**, acute  
**ad**, to  
**adesse**, to be present  
**adhibitus**, used, applied  
**adhuc**, as yet, hitherto  
**adinterim**, meanwhile  
**admiro**, to look, wonder at  
**admodum**, at least, fully, very  
**adnatus**, adnate, touching broadly  
**adparenter**, apparently  
**adproximatus**, drawn near  
**adscendens**, ascending  
**adsociatus**, clustered  
**adspectus**, **us**, **m.**, sight, appearance  
**adultus**, fully grown  
**adustus**, burned, blackened  
**aecidiiformis**, aecidium-shaped  
**aecium**, a cluster cup  
**aegre**, poorly, with difficulty  
**aemulans**, rivalling  
**aemulus**, similar  
**aeneus**, brazen, coppery  
**aequalis**, equal  
**aequans**, equalling  
**aequidistans**, equally distant  
**aerius**, aerial  
**aerobius**, growing in the air  
**aerophilus**, aerial  
**aeruginosus**, copper-colored  
**aeternus**, eternal  
**affectus**, affected  
**affixus**, attached  
**afflatus**, swollen  
**agamicus**, asexual  
**agamus**, asexual  
**ager**, **ri**, **m.**, field  
**agglomeratus**, heaped together  
**aggregatus**, grouped together  
**albicans**, whitening  
**albidus**, white  
**albofarctus**, white-stuffed  
**albolutescens**, whitish yellow  
**albus**, white  
**alcoholicus**, alcoholic  
**alienus**, foreign, strange  
**aliquantisper**, for a while

- aliquantulus**, somewhat, a little  
**alius**, another, other  
**alius,—alius**, some—others  
**allantoid**, sausage-shaped, short and curved  
**allantoideus**, a, um, allantoid, sausage-shaped  
**alliaceus**, a, um, of an onion  
**alpis**, mountain  
**alte**, deeply  
**alternus**, a, um, alternate  
**altitudo**, f., height  
**altus**, a, um, high  
**alutaceus**, grayish yellow  
**alveolatus**, a, um, with hollows  
**amaricans**, making bitter, irritating  
**ambiens**, surrounding  
**ambitus**, m., periphery  
**amentum**, n., catkin  
**amerosporus**, a, um, with one-celled spores  
**amethysteus**, a, um, amethyst-colored  
**amissus**, a, um, lost, dismissed  
**ammoniacalis**, e, like ammonia  
**amnis**, is, m., a brook  
**amoebiformis**, e, amoeba-form  
**amoeboid**, amoeba-like  
**amoeboideus**, a, um, amoeba-like  
**amoene**, beautifully  
**amoenus**, a, um, beautiful, pleasant  
**amoveo**, to withdraw  
**amphibius**, a, um, amphibial  
**amphigenus**, a, um, borne on both sides  
**amplectens**, clasping  
**amplecto**, to wind or clasp  
**amplus**, a, um, broad, ample  
**ampulliformis**, ampulliform, cushion-like  
**amyelicus**, without mycelium  
**amygdalinus**, almond-like, pink  
**analogus**, similar  
**anastomosans**, anastomosing, running together  
**anceps**, cipitis, two-headed, double  
**androgynus**, with male and female  
**angularis**, angular  
**angulosus**, angulose, angular  
**angustatus**, narrowed  
**angustus**, narrow  
**animalcula**, ae, f., little animal  
**annularis**, ring-like  
**annulatum**, in a ring  
**annulatus**, annulate, with a ring, ringed  
**annuliform**, ring-like  
**annulus**, i, m., a ring  
**annuosus**, aged, old  
**anormaliter**, abnormally  
**anserinus**, of or pertaining to geese  
**ante**, before  
**antecedens**, preceding  
**antheridiiformis**, antheridium-like  
**antheridium**, ii, m., antherid  
**antherozoidium**, ii, n., antherozoid  
**antice**, in front  
**apapophysatus**, without paraphyses  
**apertus**, open  
**aperio**, to open, uncover  
**apex**, icis, m., tip  
**apiculatus**, apiculate, with a point  
**apiculiformis**, like a little point  
**apophysatus**, with a supporting cell  
**apothecium**, ii, n., cup or disk containing asci  
**appendicula**, ae, f., little appendage  
**appendiculatus**, appendiculate, appendaged  
**appendix**, icis, f., appendage  
**applanatus**, applanate, flattened  
**approximatus**, close, near  
**apricus**, wild  
**apud**, at  
**apus**, odis, without a stalk  
**aquaeductus**, us, m., aqueduct  
**aquaticus**, aquatic  
**aquosus**, watery  
**arachnoideus**, cobwebby  
**araneosus**, cobwebby  
**arbor**, is, f., tree  
**arbusculiformis**, shrub-like  
**arcte**, closely  
**arcticus**, arctic  
**arcuatim**, bow-like, curved  
**arcuatus**, arcuate, bow-like  
**area**, ae, f., space  
**areola**, ae, f., little space  
**areolatus**, areolate, marked by areas or spaces  
**arescens**, drying  
**aresco**, to become dry

argenteus, silvery  
 argentinus, silvery  
 argillaceus, clay-color  
 aridus, dry  
 arista, ae, f., awn  
 aristatus, aristate, awned  
 arrectus, upright, stiff  
 arrhizus, without roots  
 articulatus, jointed  
 articulus, i, m., joint  
 asciger, ascus-bearing  
 ascogenic, producing asci  
 ascoma, atis, n., spore-fruit, ascus-bearing body  
 ascophorus, ascus-bearing  
 ascus, i, m., sac  
 asiaticus, Asiatic  
 asper, rough  
 asperatus, asperate, roughened  
 aspergo, to scatter, sprinkle  
 asperulus, slightly roughened  
 asser, eris, m., branch, beam, post  
 assurgens, ascending  
 asterigmaticus, without stalks  
 asterineus, star-like, radiate  
 asteroid, star-like, radiate  
 asteroma-like, with radiate subicle  
 astomus, mouthless  
 astromatoideus, without a stroma  
 asymmetricus, irregular  
 ater, dark, black  
 atomatus, with small particles  
 atomisticus, tiny  
 atque, also  
 atrans, blackening  
 atratus, dark  
 atro-fuscus, dark  
 atro-inquinans, blackening  
 atro-nitidus, black and shining  
 atropiceus, black as pitch  
 atropurpureus, dark purple  
 attenuatus, tapering  
 attingens, touching  
 attolens, raising  
 atypicus, abnormal  
 auctio, onis, f., growth  
 auctor, is, comm., author  
 auctus, enlarged  
 audeo, to dare  
 augmentum, i, n., increase, growth

aurantiaceus, orange, golden  
 aurantinus, orange  
 auratus, golden  
 aureus, golden  
 auriformis, ear-shaped  
 australis, southern  
 aut, or  
 autem, moreover  
 authenticus, authentic  
 autumnus, autumn  
 avulsus, torn off, separated  
 axicola, growing on the axis  
 axiformis, axis-like  
 axilaris, axillary  
 azonus, without zones  
 azygospore, a zygosporium formed without conjugation

## B

bacca, ae, f., berry  
 baccatus, berry-like  
 bacillaris, bacillar, rod-shaped  
 bacteriformis, bacterium-like  
 bactrosporus, with rod-shaped spores  
 baculum, i, n., rod  
 badius, brown  
 basidiosporus, with spores borne on stalks  
 basidium, ii, n., rod, basidium  
 basilaris, basal  
 basis, is, f., base  
 bene, plainly, well  
 benevole, kindly  
 betulicola, growing on birch  
 betulinus, birchen  
 bi-, two, twice  
 bibulus, absorbing  
 biclavuligerus, bearing two club-shaped branches  
 biconic, conic at each end  
 biconvexus, biconvex  
 bicornus, with two horns, two-branched  
 bicorticus, with two barks  
 bidentatus, two-toothed  
 bifidus, split into two parts  
 biformis, or -us, of two forms  
 bifrons, on both sides of the leaf  
 bifurcatus, two-forked

- biguttulatus**, with two globules or vacuoles  
**bilabellulatus**, two-lipped  
**bilabiatus**, two-lipped  
**bilobus**, two-lobed  
**bilocularis**, two-celled  
**binatim**, by twos  
**binucleolatus**, with two oil-drops  
**binus**, two-fold  
**biogenus**, biogenous, growing on organisms  
**biophilus**, biophilous, growing on organisms  
**bipunctatus**, with two vacuoles  
**bis**, twice  
**biscociformis**, biscuit-shaped  
**biserialis**, in two rows  
**biseriatus**, in two rows  
**bisporus**, two-spored  
**bitunicatus**, with two walls  
**biuncinatus**, two-hooked  
**bombardus**, cannon-like  
**borealis**, northern  
**botryosus**, botryose, clustered like grapes  
**botuliformis**, botuliform, sausage-shaped  
**brachiatus**, with arms  
**bractea**, *ae*, *f.*, bract  
**brevicollis**, short-necked  
**brevis**, short  
**breviter**, shortly  
**breviusculus**, somewhat short  
**brunneolus**, brownish  
**brunneus**, brown  
**bullula**, *ae*, *f.*, bubble  
**bullula**, *ae*, *f.*, a little swelling  
**byssinus**, cottony  
**byssisedus**, byssisede, seated on cotton  
**byssoides**, byssoid, cottony  
**byssus**, *i*, *f.*, cotton
- C**
- caerulescens**, turning blue  
**caesius**, bluish-grey  
**caespes**, *itis*, *m.*, tuft  
**caespitosus**, cespitose, in tufts  
**caesus**, fallen  
**calamus**, *i*, *m.*, stem  
**calcareus**, of lime, calcareous  
**calcariferus**, bearing lime  
**calcifer**, bearing lime  
**calidarium**, *ii*, *n.*, hot-house  
**callosus**, roughened  
**calvescens**, becoming bare  
**calvitium**, *ii*, *n.*, bald spot  
**calvus**, bare, bald, not pubescent  
**calx**, *calcis*, *f.*, lime  
**calyciformis**, cup-shaped  
**calycicola**, living on the calyx  
**calycularis**, cup-shaped  
**calyptra**, *ae*, *f.*, cap  
**calyx**, *ycis*, *m.*, calyx, cup  
**campanulatus**, bell-shaped  
**campaniformis**, bell-shaped  
**campylotropus**, curved  
**canaliculatus**, canaliculate, channeled  
**candicans**, growing white  
**cannabinus**, of hemp  
**canus**, hoary  
**capillaris**, hair-like  
**capillatura**, *ae*, *f.*, mass of hair  
**capilliform**, hair-like  
**capillitium**, *ii*, *n.*, mass of threads  
**capillus**, *i*, *m.*, hair  
**capitatus**, capitate, in heads  
**capitulatus**, borne in little heads  
**capitulum**, *i*, *n.*, a little head  
**capreolus**, *i*, *m.*, goat  
**caprinus**, of or pertaining to goats  
**capsula**, *ae*, *f.*, capsule  
**caput**, *itis*, *n.*, head  
**carbo**, *onis*, *m.*, carbon, charcoal  
**carbonaceus**, like coal  
**carbonicola**, on burned-over ground or on charcoal  
**carbonous**, like coal or carbon  
**carens**, lacking  
**caries**, *ei*, *f.*, decay  
**carinatus**, keeled  
**cariosus**, decaying  
**carneus**, flesh-colored  
**carnosus**, carnose, fleshy  
**caro**, *carnis*, *f.*, flesh  
**carpogenus**, living on fruit  
**carpogonium**, *ii*, *n.*, carpogone  
**cartilagineus**, cartilaginous, tough but pliable  
**caryopsis**, *idis*, *f.*, grain



**castaneus**, chestnut brown  
**catenate**, in chains  
**catenifer**, chain-bearing  
**catenigerus**, bearing chains  
**catenula**, *ae, f.*, chain  
**catenulatus**, catenulate, in chains  
**catenuliformis**, chain-like  
**catenulus**, *m., -a, f.*, a small chain  
**caterva**, *ae, f.*, heap, crowd  
**catervatim**, in heaps, in groups  
**cauda**, *ae, f.*, tail  
**caudatus**, caudate, tailed  
**caudex**, *icis, m.*, stalk  
**caudicula**, *ae, f.*, a little stalk  
**caulicola**, growing on stems  
**caulis**, *is, m.*, stem  
**caulogenus**, on stems  
**caverna**, *ae, f.*, a cavern, hollow  
**cavernosus**, with hollows  
**cavernula**, *ae, f.*, a little cavity  
**cavitas**, *atis, f.*, cavity  
**cavitatus**, hollow  
**cavus**, *i, m.*, hollow  
**celans**, hiding  
**cella**, *ae, f.*, a cell  
**celluliformis**, cell-shaped  
**cellulosus**, cellular  
**censeo**, to think, estimate  
**centrifugus**, centrifugal  
**centrum**, *i, n.*, the centre  
**cephalodium ii, n.**, a globose to club-shaped projection on a lichen thallus  
**ceraceus**, waxy  
**cerebriformis**, brain-like  
**cereus**, waxy  
**cerno**, to perceive, separate  
**cernuus**, nodding, inclined  
**cerumen**, *inis, n.*, wax  
**cervinus**, tawny  
**cespitose**, clustered, crowded  
**ceterum**, remaining  
**chalybeus**, of steel  
**character**, *eris, m.*, character, style  
**charta**, *ae, f.*, paper  
**chartaceus**, papery  
**chlamydosporicus**, with chlamydo-spores  
**chlorinus**, greenish  
**chlorophyllous**, green, with chlorophyll

**chorda**, *ae, f.*, twine, a cord  
**cibaria**, *ae, f.*, food  
**cicatrix**, *icis, f.*, a scar  
**ciliatulus**, slightly ciliate  
**ciliatus**, ciliate, with long hairs on the margin  
**ciliolatus**, ciliolate, with cilia  
**cincinnatus**, curled  
**cinctus**, surrounded  
**cinerascens**, becoming ashen  
**cinereus**, ashen  
**cingens**, surrounding  
**cingulatus**, surrounded  
**cingulus**, *i, m.*, a little belt  
**cinnabarinus**, orange red  
**cinnamomeus**, cinnamon-colored  
**circa**, near  
**circinatus**, circinate, coiled  
**circino**, to circle  
**circiter**, about  
**circuitus**, *us, m.*, a circuit  
**circulus**, *i, m.*, a circle  
**circumambiens**, encircling  
**circumdatus**, surrounded  
**circumscissile**, splitting circularly  
**circumscriptus**, circumscribed  
**circumtextus**, surrounded  
**circumvallatus**, surrounded  
**cirrhatu**s, curled  
**cirrhosus**, curly  
**citatus**, cited  
**cito**, to name, mention  
**cito**, soon, rather  
**citriiformis**, citriiform, lemon-shaped  
**citrinus**, lemon yellow  
**cladodium ii, n.**, a leaf, branch  
**cladogenus**, borne on branches  
**clathratus**, clathrate, latticed  
**clausus**, closed  
**clava**, *ae, f.*, a club  
**clavaria-like**, club-shaped, or coral-like  
**clavatus**, club-shaped  
**claviformis**, club-shaped  
**clavis**, *is, f.*, a key  
**clavula**, *ae, f.*, a little club  
**clavulatus**, club-shaped  
**clypeatus**, shield-like  
**clypeus**, *i, m.*, a shield

**coacervatus**, coacervate, heaped together  
**coadunatio, onis, f.**, a summing up  
**coadunatus**, united, collected  
**coalescens**, coalesced, running together  
**coalitus**, joined, running together  
**coarctatus**, crowded  
**coccineus**, bright red  
**coccus, i, m.**, round cell, berry  
**cochleariformis**, spoon-shaped  
**cochleatus**, ear-like  
**coctus**, cooked  
**coenobium, ii, n.**, a colony  
**coerulescens**, turning blue  
**coffeatus**, coffee-like  
**coffeicolor**, coffee-colored  
**coffeiformis**, coffee-shaped  
**cognatus**, related  
**cogo**, to act, collect  
**cohabitans**, living together  
**cchaerens**, cohering  
**collabasco**, to fall in  
**collabens**, collapsing, crumbling up  
**collabent**, collapsing, falling in  
**collapsus**, collapsed  
**collariatus**, collared, attached to a collar  
**collectivus**, collected  
**colliculosus**, with tiny elevations  
**collum, i, n.**, a neck  
**colonia, ae, f.**, a colony  
**color, is, m.**, color  
**coloratio, onis, f.**, coloration, color  
**coloratus**, colored  
**coloreus**, colored  
**columella, ae, f.**, a small pillar, columella  
**columnaris**, columnar  
**comatus**, shaggy  
**comestibilis**, eatable  
**commissura, ae, f.**, commissure, path, cleft  
**commixtus**, commingled  
**communico**, to share, communicate  
**communis**, common  
**comosus**, hairy  
**compactus**, dense  
**compaginatus**, united  
**complectens**, comprising, clasping

**complecto(r)**, to clasp  
**complexus**, complex  
**compositus**, composed, compound  
**compressus**, compressed  
**concatenatus**, in chains  
**concavus**, concave  
**concentricus**, concentric  
**conceptaculum, i, n.**, conceptacle  
**conchiformis**, conchiform, shell-shaped  
**concolor**, concolorous, of like color  
**concrecens**, growing together  
**concretus**, united  
**condensus**, condensed  
**conditio, onis, f.**, condition  
**confero**, to collect  
**confertus**, crowded  
**confirmatio, onis, f.**, confirmation  
**conflatus**, swollen  
**confluens**, running together  
**confluo**, to merge  
**conformis**, all alike, similar  
**confundo**, to mingle, confuse  
**congestus**, crowded  
**conglobatus**, conglobate, heaped together  
**conglomeratus**, heaped  
**conglutinator**, conglutinate, glued together  
**congregatus**, aggregated  
**congruo**, to agree  
**conicus**, conical  
**conidium, ii, n.**, an asexual spore  
**conidial**, producing or pertaining to conidia  
**conidicus**, conidial  
**conidiferus**, conidia-bearing  
**conidiophorum, i, n.**, a hypha bearing conidia, a conidiophore  
**conjugatio, onis, f.**, conjugation  
**connatus**, connate, joined  
**connexus**, connected  
**connivens**, connivent, approaching  
**conoideus**, conoid, cone-shaped  
**consortium, ii, n.**, company  
**conspersgens**, sprinkled  
**conspersus**, scattered  
**conspicuus**, conspicuous  
**conspurcatus**, polluted  
**constipatio, onis, f.**, a crowding

- constituens**, constituting  
**consuetudo, inis, f.**, a habit  
**consumptus**, destroyed  
**contemno**, to condemn, disparage  
**contextum, i, n.**, texture, context  
**contiguus**, close  
**continens**, containing  
**continuus**, continuous, one-celled  
**contortus**, twisted  
**contra**, against  
**contractus**, narrowed  
**contusus**, bruised  
**conus, i, m.**, a cone  
**convergens**, coming together  
**convolutus**, convolute, coiled  
**convolutio, onis, f.**, a fold  
**copiosus**, abundant  
**coprophilus**, growing on dung  
**copulans**, copulating  
**coralloid**, coral-like  
**coralloideus**, coralloid, like much-branched coral  
**coriaceus**, leathery  
**corneus**, corneous, horn-like  
**corniculatus**, corniculate, horned  
**corniformis**, horn-shaped  
**cornutus**, horned  
**coronatus**, crowned  
**corpusculum, i, n.**, a little body  
**corrugatus**, corrugate, ridged  
**corruptus**, corrupted, spoiled  
**cortex, icis, m.**, the bark  
**corticalis**, cortical, of bark  
**corticatus**, corticate, with a bark or epiderm  
**corticola**, corticole, growing on bark  
**cortina, ae, f.**, veil  
**cortinate**, with a curtain-like veil  
**corvinus**, pertaining to the raven, black  
**costa, ae, f.**, ridge  
**ccestatus**, costate, ridged  
**crassities, ei, f.**, thickness  
**crassitudo, inis, f.**, thickness, width  
**crassiusculus**, somewhat broad  
**crassus**, broad  
**crateriformis**, crateriform, crater-shaped  
**creber**, crowded  
**cremicolor**, cream-colored  
**cribrosus**, sieve-like  
**crinitus**, hairy, crested  
**crispulus**, somewhat crisp  
**crispus**, crisp  
**crista, ae, f.**, crest  
**cristatus**, crested  
**crocatu8**, yellow  
**croceus**, yellow  
**cruciatim**, cruciately, cross-like  
**cruentatus**, bloody  
**crusta, ae, f.**, crust  
**crustaceous**, crust-like  
**crustiformis**, crust-shaped  
**crustose**, forming a crust, more or less interrupted  
**crustula, ae, f.**, a little crust  
**cubile, is, n.**, a bed  
**cuboideus**, cuboid, cubical  
**cucullatus**, hooded  
**cucumeriformis**, cucumber-shaped  
**culmicola**, growing on grass-stems  
**culmus, i, m.**, culm, a stalk, stem  
**cultellus, i, m.**, a small knife  
**culter, tri, m.**, a knife  
**cultriformis**, knife-like  
**cultus**, cultivated  
**cum**, with  
**cumulatus**, heaped up  
**cuneatus**, wedge-shaped  
**cuneiformis**, wedge-shaped  
**cuniculus, i, m.**, a rabbit  
**cupreus**, coppery  
**cuprinus**, coppery  
**cupula, ae, f.**, a little cup  
**cupularis**, **cupulatus**, **cupuliformis**, cup-shaped  
**curtus**, short  
**curvatus**, curved  
**cusps**, a point  
**cuspidatus**, cuspidate, with a tooth  
**cuticula, ae, f.**, cuticle  
**cuticularized**, with firm cover or cuticle  
**cutis, is, f.**, the skin  
**cyaneus**, blue  
**cyathiformis**, cup-like  
**cyclus, i, m.**, a cycle  
**cylindraceus, cylindricus**, cylindrical  
**cymbiformis**, boat-shaped  
**cyphella, ae, f.**, an opening or hollow

in a thallus, more or less cup-shaped  
 cystidium, ii, n., cyst  
 cystophore, the stalk which bears a cell or cyst

## D

daedaleus, labyrinthine  
 dealbatus, whitened  
 debilis, weak  
 deciduus, falling  
 decies, ten times  
 decorticatus, without bark  
 decumbens, prostrate  
 decurrens, decurrent, running down the stem  
 defectus, lacking  
 deficiens, lacking  
 deficio, to lack  
 definitus, definite  
 deflexus, deflexed  
 deformus, deformed  
 degenero, to degenerate  
 dehiscens, dehiscent, splitting  
 dein, then, at length  
 dejectus, fallen  
 dejiciens, throwing down  
 delicatulus, delicate  
 delineatus, figured  
 deliquescens, deliquescing, liquefying  
 delitescens, hiding  
 delitescio, to conceal, lurk  
 deltoideus, delta-like, triangular  
 dematium-like, black and cobwebby  
 dematius, black and cottony  
 demonstro, to show  
 demum, at length  
 dendritice, dendritically, tree-like  
 dendriticus, tree-like  
 dendroideus, dendroid, tree-like  
 denigratus, blackened  
 denique, at length  
 densus, close, dense  
 dentatus, toothed  
 denticulatus, denticulate, with little teeth  
 denudans, denuding  
 denudatus, denuded  
 deorsum, downward  
 dependens, hanging  
 deplanatus, flattened

depressus, depressed  
 derumpens, breaking  
 descendens, descending  
 desciscens, leaving, deserting  
 describo, to describe  
 descriptus, described  
 desicco, to dry up  
 desinens, ending, closing  
 desum, to fail, be absent  
 destitutus, lacking  
 destruens, destroying  
 detergibilis, removable, breakable  
 deustus, burnt  
 diametralis, of the diameter  
 diametrum, i, n., diameter  
 diaphanus, diaphanous, transparent  
 diatrype-like, with a stroma different from the tissue of the matrix  
 dichotomus, dichotomous, two-forked  
 declinus, with separate sexes  
 dictyosporus, spores having cross and longitudinal walls  
 didymosporus, with two-celled spores  
 didymus, two-fold or two-celled  
 differo, to differ  
 difficilis, difficult  
 diffluens, diffluent, dissolving  
 diffractus, broken  
 difformis, of two forms  
 digestus, broken up  
 digitiformis, finger-shaped  
 digitaliformis, digitate, finger-like  
 digitatus, digitate, having fingers  
 dignosco, to differ  
 dignotus, to distinguish  
 dilabens, breaking apart  
 dilatatus, spread out  
 dilute, dilutely  
 dilutus, dilute  
 dimidiatus, dimidiate, two-lobed, halved  
 dimidius, half  
 dimorphus, of two forms  
 dioecious, sex organs on separate plants  
 directio, onis, f., direction  
 directus, straight  
 dirumpens, breaking apart  
 disciformis, disc-shaped  
 discolorus, discolorous, discolored

*discretus*, discrete, separate  
*discrimen, inis, n.*, difference  
*disculus, i, m.*, little disc  
*disfractus*, broken  
*disparens*, disappearing  
*dispergens*, scattering  
*dispositus*, arranged  
*disruptus*, broken  
*disseco*, to cut up  
*dissectus*, cut up  
*disseminatus*, scattered  
*dissentio*, to disagree  
*dissepimentum, i, n.*, partition, wall  
*distal*, distant, further  
*distans*, remote  
*distichus*, distichous, in two rows  
*distinguo*, to distinguish  
*diu*, long  
*divaricatus*, spreading  
*divergens*, diverging  
*diversimodus*, in different ways  
*diversus*, diverse, different  
*divinans*, conjecturing  
*divisio, onis, f.*, a division  
*divisus*, divided  
*doliiformis*, *doliiform*, cask-shaped,  
     jar-shaped  
*dolium, ii, n.*, cask, jar  
*donacinus*, of a reed  
*donatus*, furnished  
*dorsiventral*, with two unlike sides  
*dorsum, i, n.*, back  
*dothideaceus*, like *Dothidea*, *i. e.*, lo-  
     culate  
*dubitantur*, doubtfully  
*dubius*, doubtful  
*duco*, to lead  
*ductus*, led  
*dulcis*, sweet  
*dumetum, i, n.*, a thicket  
*duo*, two  
*duodecim*, twelve  
*duplo*, twice  
*duriusculus*, somewhat hard  
*durities, ei, f.*, hardness  
*durus*, hard

## E

*eburneus*, ivory-white  
*ecaudatus*, without a tail  
*eccentricus*, eccentric, lateral

*echinatus*, spiny  
*echinulatus*, echinulate, spiny  
*edulis*, edible  
*effiguratus*, shaped, formed  
*effoetus*, worn out  
*efformatus*, formed  
*efusus*, effuse, spread out  
*egrediens*, growing out  
*elasticus*, elastic  
*elatus*, tall  
*elevatus*, raised  
*ellipticus*, elliptical  
*ellipsoideus*, ellipsoid  
*elongatus*, lengthened  
*emarginatus*, without a margin  
*emergens*, emerging  
*emergeo*, to emerge  
*emersus*, emerging  
*emittens*, emitting  
*emortuus*, dead  
*enatus*, arising from  
*endobasidial*, continuous with the bas-  
     idium  
*endobiotic*, growing within living  
     things  
*endochroma, atis, n.*, colored contents  
*endogenus*, endogenous, born within  
*endoperidium, ii, n.*, inner peridium  
*endophytic*, growing in plants  
*endoplasma, atis, n.*, protoplasm  
*endoxylus*, within wood  
*endozoic*, growing in animals  
*enim*, for  
*endoparasiticus*, internally parasitic  
*entomogenus*, entomogenous, living  
     in insects  
*epelliculosus*, without a covering or  
     pellicle  
*epidermis, idis, f.*, epiderm, the sur-  
     face skin  
*epigaeus*, epigaeal, on the ground  
*epigenus*, borne above  
*epiphloeodus*, on the bark  
*epiphragma*, an upper wall or division  
*epiphyllus*, on the upper side of the  
     leaf  
*epiphytic*, upon plants  
*episporium, ii, n.*, outer wall of spore  
*epithecium*, a layer above the asci, usu-  
     ally formed of the tips of the paraphy-  
     ses

epizotic, growing on animals  
 equinus, equine, belonging to horses  
 erectus, erect  
 ergo, therefore  
 erostratus, without a beak  
 erostris, without a beak  
 erraticus, erratic, wandering  
 error, is, m., error  
 eructatus, thrown up  
 erumpens, bursting out  
 erysiphoideus, like Erysiphe, cob-  
   webby  
 esepate, without cross walls  
 estriatus, without lines or markings  
 etiam, also  
 etsi, although  
 eumorphus, well-formed  
 eutype-like, eutypeous, eutypoid, with  
   an effuse stroma similar to the tis-  
   sue of the matrix  
 evacuans, emptying  
 evacuatus, emptied  
 evado, to escape  
 evaginatus, without a sheath  
 evanescens, evanescent, disappearing  
 evanidus, vanishing  
 evidentius, more clearly  
 evolutus, developed  
 evolatus, without a volva  
 evolvens, developing  
 exacte, exactly  
 exalbescens, becoming white  
 exalbidus, whitish  
 exalbugo, to whiten  
 exannulatus, without a ring  
 exappendiculatus, not appendaged  
 exaridus, dried out  
 exasperans, roughened  
 exasperatus, roughened  
 exaspero, to roughen  
 excavatio, onis, f., an excavation, hol-  
   lowing out  
 excavatus, hollowed out  
 excedens, exceeding  
 excentric, out of the centre, lateral  
 exciple, the outer wall or covering of  
   an apothecium  
 excipuliformis, cup-shaped  
 excipulum, i, n., exciple, margin  
 excrescens, growing out

excutiens, shaking out  
 exemplaris, model  
 exemplarium, ii, n., specimen, sample  
 exemplum, i, n., an example  
 exesus, consumed, destroyed  
 exhibens, exhibiting  
 exigens, scanty  
 exiguitas, atis, f., smallness, scantiness  
 exiguus, little, small  
 exilis, thin, slender  
 eximie, exceedingly  
 existimo, to estimate  
 exitus, us, m., a departure, escape  
 exobasidial, separated by a wall from  
   the basidium  
 exogenus, arising on the outside  
 exoperidium, ii, n., outer peridium  
 exoriens, arising  
 exosporium, ii, n., exospore, outer  
   wall of the spore  
 expallens, becoming pale  
 explodens, exploding  
 expulsus, expelled  
 exquisite, beautifully  
 exsertus, exerted, thrust out  
 exsiccatio, onis, f., a drying out  
 exsiccatus, dried out  
 exsiliens, escaping  
 exsuccus, without milk or juice  
 extensio, onis, f., extension  
 externus, external  
 extimus, outermost, ultimate  
 extra, without, outside  
 extrico, to extricate  
 extrorsum, toward the edge  
 extus, outside

## F

fabiformis, bean-shaped  
 fabrica, ae, f., texture  
 facies, ei, f., face, form  
 facilis, easily  
 fagineus, beechen  
 falcatus, falcate, scythe-shaped, curved  
 falciformis, beak-shaped, scythe-  
   shaped  
 familia, ae, f., family  
 familiola, ae, f., a little family  
 farctus, stuffed

- farina*, ae, f., meal, flour  
*farinaceus*, mealy  
*fascia*, ae, f., fascicle  
*fasciatus*, grouped  
*fasciculatus*, fasciculate, fascicled, in bundles  
*fastigiatus*, bunched  
*fatiscens*, disappearing, breaking up  
*favosus*, hollow  
*femineus*, feminine  
*fenestratus*, with windows or openings  
*fere*, almost  
*fermentatio*, onis, f., fermentation  
*fermentum*, i, n., yeast  
*ferruginascens*, turning rust-colored  
*ferrugineus*, rust-colored  
*ferrumequinum*, i, n., a horse-shoe  
*ferrum*, i, n., iron  
*fibra*, ae, f., a fiber, filament  
*fibrilla*, ae, f., little fibril  
*fibrillula*, ae, f., a little fibril  
*fibrosus*, fibrous  
*fictitius*, fictitious  
*filamentosus*, filamentous, thread-like  
*filia*, ae, f., daughter  
*filiformis*, filiform, thread-shaped  
*filiger*, filament-bearing  
*filum*, i, n., thread  
*fimbria*, ae, f., fringe  
*fimbrians*, fringing  
*fimbriatulus*, slightly fringed  
*fimbriatus*, fimbriate, fringed  
*fimicola*, fimicole, dwelling on dung  
*finus*, i, m., dung  
*findo*, to cleave, divide  
*firmulus*, somewhat firm  
*fissilis*, cleft, ruptured  
*fissuratus*, fissured, split  
*fissus*, split  
*fistulosus*, hollow  
*flabelliformis*, fan-shaped  
*flaccidus*, weak  
*flagella*, ae, f., lash  
*flagellatus*, bearing long bristles or threads  
*flagelliformis*, lash-like  
*flamens*, flame-colored  
*flavens*, yellowing  
*flavidus*, yellowish  
*flavus*, yellow  
*flexuosus*, flexuous, full of turns or windings  
*flexus*, bent  
*flocciformis*, tuft-like  
*floccosus*, floccose, cottony  
*floccus*, i, m., tuft  
*floralis*, floral  
*flumen*, inis, n., river  
*fluvius*, ii, m., a river  
*fluxilis*, flowing  
*foedatus*, dark, soiled  
*foetidus*, with a bad odor  
*follicola*, foliicole, living on leaves  
*foliose*, like a leaf in form  
*folium*, ii, n., leaf  
*foramen*, inis, n., a hole  
*forma*, ae, f., form  
*formans*, forming  
*formo*, to form  
*formosus*, beautiful  
*fornix*, icis, m., a vault  
*forsan*, perhaps  
*forsitan*, perhaps  
*fortasse*, perhaps  
*forte*, strongly  
*fovens*, nourishing  
*fraccidus*, soft, mellow  
*fractus*, broken  
*fragilis*, fragile  
*fragmentum*, i, n., a bit, fragment  
*frequens*, frequent  
*friabilis*, falling to pieces  
*frigidarium*, ii, n., a cold place, cold storage  
*frondosus*, leafy  
*frons*, dis, f., a leaf  
*fruticicola*, living on fruits  
*fructiferus*, fructifer, fruit-bearing  
*fructificans*, fruiting  
*fructificatio*, nis, f., fruiting  
*fructus*, us, m., fruit  
*frustulatus*, fragmentary  
*frustum*, i, n., a bit, piece  
*fruticosus*, fruticose, shrub-like  
*fruticulosus*, fruticulose, shrub-like  
*fucatus*, colored  
*fugans*, fleeting  
*fulciens*, supporting  
*fuliginous*, fuliginous, sooty

fuligo, inis, f., soot  
 fultus, supported  
 fulvellus, somewhat tawny  
 fulvescent, becoming tawny  
 fumagineus, fumaginous, smoky.  
 fumosus, smoky  
 fungicola, fungicole, growing on fungi  
 fungillus, i, m., a little fungus  
 fungus, i, m., a fungus  
 funicularis, rope-like  
 funiculus, i, m., a little rope  
 funiformis, rope-like  
 furcatus, furcate, forked  
 furfur, uris, m., bran  
 furfuraceus, bran-like  
 furfurellus, covered with bran  
 fuscatus, darkened  
 fuscillus, somewhat dark  
 fuscescens, darkening  
 fuscidus, dark  
 fuscidulus, dark  
 fuscus, dark, or dark brown  
 fusiformis, fusiform, spindle-shaped  
 fuisporus, with spindle-shaped spores  
 fusoides, fusoid, spindle-shaped

## G

galeiformis, hood-shaped  
 galeriformis, cap-shaped  
 gamete, sex-cell  
 gangliformis, forming knots  
 gangligerus, bearing knots  
 gelatina, ae, f., gelatine  
 geminatus, paired, twinned  
 gemmiparus, producing buds  
 generans, generating  
 genesis, is, f., origin  
 geniculatus, bent  
 genuflexus, bent  
 genuinus, genuine  
 genus, eris, n., genus  
 gerens, bearing  
 germinans, germinating  
 germinatio, onis, f., germination  
 gibbosus, swollen  
 gigastylosporus, with very large stylospores  
 gignens, producing  
 gigno, to bear  
 gilvus, brownish

glaber, smooth  
 glabrescens, becoming smooth  
 glacies, ei, f., glacier, ice  
 glans, glandis, f., a nut,  
 glaucescens, turning bluish-green  
 glaucus, sea-green  
 gleba, ae, f., soil, mass  
 globosus, globose, rounded  
 globuliger, bearing a ball  
 globulus, i, m., a globule  
 glomerula, ae, f., a little mass  
 glomerulatus, in heaps  
 gluten, inis, n., glue  
 glutinosus, glutinous  
 gonidium, ii, n., an algal cell  
 gossypinus, cottony  
 gracilis, graceful, slender  
 gradatim, gradually  
 gradus, us, m., grade, step  
 gramen, inis, n., grass  
 gramineus, grassy  
 graminicola, growing on grass  
 grandis, large  
 grandiusculus, somewhat large  
 granulatus, granular  
 granulosus, granular  
 graphidoideus, long and cleft, like

## Graphis

graveolens, of unpleasant odor  
 gregarius, gregarious, in clusters  
 gregatim, in clusters  
 grex, gregis, m., a flock  
 griseolus, grayish  
 griseus, gray  
 grossus, thick  
 grumosus, heaped  
 grumus, i, m., a heap  
 gumosus, gummy  
 gutta, ae, f., a vacuole  
 guttatus, with little drops  
 guttula, ae, f., a drop or vacuole  
 guttulosus, with drops  
 gyalectoideus, Gyalecta-like  
 gypseus, gypsum-like  
 gyrosus, gyrose, spiral

## H

habeo, to have  
 habitatio, onis, f., habitat  
 habitus, us, m., habit



**hactenus**, up to the present time  
**haerens**, adhering  
**haereo**, to hold to  
**halos**, o, f., a halo  
**hamatus**, hamate, hooked  
**haud**, not at all  
**haustorium**, ii, n., a sucker  
**helicoideus**, spiral-like  
**heliotropicus**, heliotropic  
**helvolus**, deep purple  
**herba**, ae, f., a plant  
**herbicola**, dwelling on herbs  
**heterogamete**, one of two unlike sex-cells  
**heterogeneous**, different  
**heteroicus**, on two hosts  
**heteromorphus**, heteromorphic, of different kinds  
**hexagonus**, hexagonal  
**hexasporus**, six-spored  
**hians**, gaping  
**hiascens**, gaping  
**hibernans**, resting  
**hicillic**, here and there  
**hinc**, hence  
**hirtellus**, somewhat shaggy  
**hodiernus**, of today  
**homogeneous**, homogeneous  
**homoicus**, on one host  
**homomorphus**, alike, of one form  
**horizontalis**, horizontal  
**hornotinus**, of this year  
**hortus**, i, m., a garden  
**hospes**, itis, m., a host  
**hospitalis**, of a host  
**huc**, hither, in this direction  
**humectatus**, wet  
**humectus**, moist  
**humidulus**, moist  
**humilis**, low, small  
**humistratus**, moist  
**humus**, i, f., the earth  
**hyalinulus**, somewhat clear  
**hyalinus**, hyaline, clear  
**hyalosporus**, with clear, one-celled spores  
**hydrophilus**, aquatic  
**hygrometricus**, absorbing moisture  
**hygrophanus**, translucent  
**hymeniferus**, membrane-bearing

**hymenium**, ii, n., fruiting surface, consisting of asci, or of basidia.  
**hymenophorum**, i, n., that which bears the hymenium  
**hypertrophiens**, hypertrophying  
**hypha**, ae, f., a fungus filament  
**hyphasma**, atis, n., the mycelium.  
**hyphoideus**, hypha-like  
**hyphomycetus**, mould-like, cobwebby  
**hypocreaceus**, Hypocrea-like, fleshy and bright-colored  
**hypodermicus**, under the epiderm  
**hypogaeus**, hypogaeal, underground  
**hypogenus**, on the under side  
**hypophloeodus**, under the bark  
**hypophyllus**, on the under side of leaf  
**hypostroma**, atis, n., lower stroma  
**hypothallus**, i, m., hypothallus  
**hypotheicum**, the area just below the layer of asci  
**hysteriformis**, Hysterium-like, long and cleft  
**hysterinus**, long and cleft as in Hysterium  
**hysterothecium**, an oblong or linear perithecium opening by a cleft

## I.

**ibi**, there, then  
**icon**, onis, f., an image, figure  
**idem**, the same  
**ideoque**, therefore  
**idoneus**, fit  
**igitur**, therefore, accordingly  
**ignotus**, unknown  
**imbricatus**, imbricate  
**immaculatus**, without spots  
**immarginatus**, without a margin  
**immaturus**, young  
**immediate**, directly  
**immersus**, sunken  
**immutatus**, unchanged  
**impalpabilis**, extremely fine and minute  
**impervius**, impervious  
**implens**, filling  
**implexus**, infolded  
**impolitus**, not polished  
**impositus**, imposed

- imprimis, especially  
 improbable, improbably  
 imus, lowest  
 inaequilateralis, unequal-sided  
 inaequaliter, unequally  
 inaequipolaris, with unequal poles  
 inanis, empty  
 inarticulatus, without divisions  
 incarceration, hidden  
 incarnatus, pink  
 incertus, uncertain  
 incisio, onis, f., incision, cutting  
 incisus, cut  
 inclinatus, bent  
 inclusus, inclosed  
 incoctus, not cooked  
 incolens, dwelling in  
 incoloratus, without color  
 inconditus, confused, unformed  
 incrassatulus, somewhat thickened  
 incrassatus, broadened, thickened  
 incresco, to grow in, increase  
 incumbens, lying upon  
 incurviusculus, somewhat incurved  
 incusus, forged, made  
 indeterminatus, indefinite  
 indico, to indicate  
 indigito, to utter, announce  
 indivisus, undivided  
 indoles, is, f., nature, natural ability  
 indumentum, i, n., a covering  
 induratus, hardened  
 indurescens, growing hard  
 indusium, ii, n., indusium  
 indutus, covered  
 ineptum, improper  
 inermis, unarmed  
 inferior, lower  
 inferus, below, lower  
 infestans, infesting  
 inficiens, infecting  
 infimus, lowest  
 infixus, fastened in  
 inflans, inflating  
 inflatus, inflated  
 infossus, sunken  
 infra, lower, below  
 infundibuliformis, infundibuliform, funnel-shaped  
 infuscatus, darkened  
 initio, at first  
 initium, ii, n., the beginning  
 innatus, innate  
 innotesco, to become clear  
 innumerus, innumerable  
 inordinatus, without order  
 inquinans, blackening  
 inquinatus, dirty  
 inquirendus, to be investigated  
 insculptus, insculptate, hollowed  
 insectum, i, n., insect  
 insertio, onis, f., insertion  
 insertus, inserted  
 insidens, seated upon  
 insitus, ingrafted  
 inspersus, scattered  
 inspissatus, thickened  
 instar, like  
 instructus, built up  
 insuetus, unusual  
 insula, ae, f., an island  
 integer, whole  
 intense, intensely  
 intercalary, in the midst of, between  
 interdum, sometimes  
 interim, meanwhile  
 intermedius, intermediate  
 intermixtus, mixed with  
 internervius, between the nerves  
 internus, internal  
 interspersus, interspersed, scattered  
 interstitium, ii, n., a space  
 intertextus, intertwined  
 intus, within  
 intracellularis, within the cell  
 intrans, entering  
 intricatus, intertwined  
 intumescens, swelling  
 intus, within  
 invasus, invaded  
 inversus, inverted  
 investiens, covering  
 invicem, in turn, mutually  
 involucrum, i, n., involucre  
 ipse, self  
 irregularis, irregular  
 irregulariter, irregularly  
 irrepens, creeping in  
 irroratus, bedewed  
 isabellinus, isabel-colored

isogamete, one of two similar sex-cells

isthmus, i, m., a connection

itaque, therefore

iteratus, repeatedly

## J

jacio, to throw

jamdudum, this long time

jodicus, of iodine

jodus, i, m., iodine

junior, younger, young

jus, juris, n., law, right

juvenilis, young

juxta, near

## L

labiatus, lipped

labium, ii, n., lip

labrum, i, n., a lip

labyrinthus, labyrinthian, tortuose

laccatus, milky

lacerans, tearing

laceratus, lacerate, torn

lacerus, torn

lacinia, ae, f., a tear

laciniatus, lacinate, torn, lobed

lacrimiformis, tear-like

lactens, milky

lactescens, milky

lactiginosus, filled with milk, milky

lacuna, ae, f., a hole

lacunosus, lacunose, with hollows

lac, lactis, n., milk

lacus, us, m., a lake

laeticolor, bright-colored

laetus, bright

laevis, smooth

lageniformis, flask-shaped

lamella, ae, f., gill

lamina, ae, f., scale, layer, blade

laminaris, leaf-like

lanatus, woolly

lanceolatus, lance-shaped

languens, withering

lanosus, woolly

lanuginosus, woolly

laricinus, of larch

larva, ae, f., larva

lateritius, brick red

latitudo, inis, f., width

latiusculus, somewhat wide

latus, eris, n., the side

latus, broad, wide

laxus, loose

lectus, collected

lego, to collect

leiosporus, with smooth spores

leniter, slightly, gently

lenticularis, lenticular, lens-shaped

lentiformis, lens-shaped

lentus, tough, flexible

leporinus, of a hare

leptodermus, thin-walled

leprosus, scab-like

leucosporus, with white spores

levis, light, smooth

levitas, atis, f., smoothness

liber, free

liberatus, freed

lichenicola, lichenicole, growing on lichens

lichenoides, lichen-like

ligneus, woody

lignatilis, of wood

lignicola, lignicole, growing on wood

lignum, i, n., wood

lilacinus, lilac-colored

limbatus, bordered

limbum, i, n., limb, border

limes, itis, m., limit

limitatus, limited

limoniformis, lemon-shaped

linea, ae, f., line

linearis, linear

lineola, ae, f., little line

linguiformis, tongue-shaped

liquifaciens, liquifying

liquo, to melt

lirella, ae, f., furrow

lirelliform, furrow-like

lividus, livid, purple

lobulatus, somewhat lobed

locandus, to be located

locatus, located

locellatus, with chambers

locellus, i, m., a little cell

loco, to place, locate

loculiferus, containing hollows

loculus, i, m., locule, place, cell, hollow

locus, i, m., place  
 longicollus, with long beaks  
 longior, longer  
 longitrorsum, longitudinally  
 longitudinalis, lengthwise  
 longus, long  
 lophus, i, m., a crest  
 lubricus, slippery  
 lucidus, clear, lucid  
 ludibundus, playful  
 lumen, inis, n., opening  
 lunatus, crescent-shaped  
 lunulate, crescent-shaped  
 luridus, lurid  
 luteus, yellow  
 lutescens, yellowish  
 lux, lucis, f., light

## M

maceratus, softened  
 macro-, large  
 macrostylospora, ae, f., large stylo-  
   spore  
 macula, ae, f., a spot  
 macularis, spotted  
 maculicola, dwelling on spots  
 maculiformis, spot-shaped  
 madidus, moist, wet  
 magis, more  
 magnitatus, with one or two large  
   globules  
 magnitudo, inis, f., size  
 magnus, great, large  
 majusculus, somewhat large  
 male, poorly  
 mamillaris, protuberant  
 mamilliformis, shaped like a papilla  
 manifestus, evident  
 mappa, ae, f., a map  
 marcescens, withering  
 marginatus, margined  
 margo, inis, m., and f., margin  
 marmoratus, marble-like  
 massa, ae, f., mass  
 massula, ae, f., a little mass  
 matricalis, belonging to the matrix  
 matrix, icis, f., matrix, layer or tis-  
   sue  
 maturus, mature  
 maturescens, ripening  
 maxime, greatly  
 mazaedium, i, n., a dough-like mass  
   of spores and paraphyses  
 medietas, atis, f., middle  
 mediocris, average  
 mediocriter, moderately  
 medius, i, m., medium  
 medulla, ae, f., the pith, medulla  
 medullary, belonging to the pith or  
   medulla  
 medullatus, stuffed, pithy  
 melanosporus, with black spores  
 melioideus, meliola-like  
 melius, better  
 melleus, honey-colored  
 mellinus, honey-colored  
 membrana, ae, f., membrane  
 membranaceus, membranaceous, mem-  
   branous, thin or membrane-like  
 memoria, ae, f., memory  
 mens, mentis, f., mind  
 merenchymaticus, with many cells  
 merens, deserving  
 meridionalis, southern  
 mesogenus, mesogenous, borne in the  
   middle  
 mesopodes, with stem in the middle  
 mesopus, with central stalk  
 metageneticus, metagenetic  
 metallicus, metallic  
 metiens, measuring  
 metulaeformis, pyramid-shaped  
 metuliformis, pyramid-shaped  
 micro-, small  
 microconidiophorus, bearing small  
   conidia  
 microcystis, small-celled  
 micronemeus, with short hyphae  
 micropycnidium, ii, n., small pycnidi-  
   um  
 microscopium, ii, n., microscope  
 microstylospora, ae, f., microstylo-  
   spore  
 migro, to move  
 miniatus, bright red  
 minimum, least  
 minor, smaller  
 minuties, ei, f., detail  
 minutus, minute

*mitis*, pleasant, mild  
*mitratus*, mitre-shaped  
*mobilis*, mobile, moving  
*molecularis*, molecule-like  
*mollusculus*, somewhat smooth  
*mollis*, smooth  
*moneo*, to caution, warn  
*monile*, *is*, *n.*, a chain, necklace  
*moniliformis*, chain-like  
*monoascus*, with one ascus  
*monocephalus*, monocephalic, one-headed  
*monocyclus*, with one cycle  
*monoicus*, monoecious  
*monoplastus*, uniform, with one pro-toplast  
*monospermus*, one-spored  
*monosporus*, one-spored  
*monostichus*, monostichous, in one row  
*mons, tis, m.*, a mountain  
*monstrosus*, monstrous  
*montanus*, mountainous  
*montosus*, mountainous  
*morbosus*, diseased  
*moriens*, dying  
*mos, moris, m.*, manner  
*motilis*, motile, able to move  
*movens*, moving  
*mox*, at length  
*mucedineus*, white and cottony  
*mucilago, inis, f.*, mucilage  
*mucosus*, mucose, slimy, mucous  
*mucus, i, m.*, mucus  
*mucro, onis, m.*, a point  
*mucronatus*, pointed  
*mucronulatus*, with a little point  
*mucronulus, i, m.*, a little point  
*multifidus*, multifold, many-divided  
*multiguttatus*, with many oil-drops  
*multilocularis*, many-celled  
*multiloculatus*, with many cells  
*multinucleate*, with many nuclei  
*multisporus*, many-spored  
*multizonatus*, with many zones  
*multoties*, many times, often  
*multus*, much  
*munitus*, furnished  
*muralis*, muriform  
*muriculatus*, muriculate, spiny

*muriformis*, muriform, with cross and longitudinal walls  
*murinus*, mouse-colored  
*murus, i, m.*, wall  
*muscosus*, mossy  
*mutans*, changing  
*mutatus*, changed  
*muticus*, muticate, not pointed  
*muto*, to change  
*mutue*, mutually  
*mutuus*, mutual  
*mycelialis*, mycelial  
*mycelicus*, mycelial  
*mycelium, ii, n.*, mycelium  
*mycogenus*, dwelling on fungi  
*mycologus, i, m.*, a student of fungi  
*myochrous*, mouse-colored  
*myriosporus*, with many spores  
*mytiliform*, shell-like

## N

*nascens*, arising  
*nascor*, to be born  
*natalis*, native  
*naufragium, ii, n.*, shipwreck  
*navel*, point of attachment  
*navicularis*, boat-shaped  
*nebulosus*, nebulous, cloudy, dark  
*nec*, not  
*nectriaceus*, Nectria-like  
*memorosus*, woody, shady  
*neque*, and not  
*nervicola*, growing on veins  
*nervi-sequus, nervi-sequens*, following the veins  
*nidulans*, nesting  
*nidulor*, to nest  
*niduo*, to nest  
*niger*, black  
*nigredo, inis, f.*, blackness  
*nigresco*, to grow black  
*nigricans*, blackening  
*nigrifactus*, blackened  
*nigrificatus*, made black  
*nigrolimitatus*, black-lined  
*nigropilus*, black-hairy  
*nigropunctulatus*, black-dotted  
*nigrostrigosus*, black-hairy  
*nimum*, too, too much  
*nisi*, unless

*nitens*, shining  
*niteo*, to shine  
*niveus*, snow-white  
*nobilis*, grand  
*nodosus*, with joints  
*noduliferus*, bearing knots  
*nodulosus*, with joints  
*nodus*, i, m., a joint, knot  
*nomen*, inis, n., a name  
*non*, not  
*nondum*, not yet  
*nonne*, not  
*nonnihil*, somewhat  
*nonnisi*, except  
*nonnullus*, some  
*normalis*, normal  
*notatus*, marked  
*notus*, known  
*novus*, new  
*nubecula*, ae, f., a little cloud  
*nubilosus*, cloudy  
*nucleatus*, nucleate  
*nucleiferus*, nucleus-bearing  
*nucleolus*, nucleole  
*nucleus*, i, m., center, nucleus  
*nudiusculus*, somewhat naked  
*nudus*, naked  
*nullimodus*, in no wise  
*nullus*, none  
*numerosus*, numerous  
*numerus*, i, m., a number  
*numquam*, never  
*nunc*, now  
*nutiquam* = *ne-utiquam*, by no means  
*nuto*, to incline  
*nutrix*, icis, f., host  
*nux*, nucis, f., a nut

## O

*ob*, for, toward, on account of  
*obclavatus*, reversed club-shaped  
*obconicus*, reversed-conical  
*obducens*, covering  
*obduco*, to cover  
*oblique*, obliquely  
*obliterans*, disappearing  
*obliteratus*, lost, destroyed  
*oblongatus*, oblong  
*oblongus*, oblong  
*obpyriformis*, obpyriform, reversed  
     pear-shaped  
*obrutus*, covered  
*obscurus*, dark  
*observandum*, to be observed  
*observatus*, found  
*obsessus*, surrounded  
*obsolesco*, to become obsolete  
*obsoletus*, obsolete, lacking  
*obtectus*, covered  
*obtegens*, covering  
*obturaculum*, i, n., opening  
*obtusangulus*, with obtuse angles  
*obtusatus*, obtuse  
*obtusus*, obtuse  
*obtutus*, us, m., a looking at  
*obvallatus*, surrounded  
*obvelo*, to cover  
*obvius*, clear, open  
*obvolvens*, enveloping  
*occellatus*, with openings  
*occulo nudo*, with unaided eye  
*occupans*, occupying  
*ochraceus*, pale yellow, ochreous  
*ochrosporus*, with yellow or yellow-  
     brown spores  
*octavus*, eighth  
*octo*, eight  
*octonus*, in eights  
*octoseptatus*, with eight cross-walls  
*octosporus*, eight-spored  
*oleosus*, oily, with oil drops  
*oligosporus*, few-spored  
*olim*, formerly  
*olivascens*, olivascent, becoming olive  
*olivaceus*, olive  
*omissus*, omitted  
*omnino*, everywhere, entirely  
*oosporous*, with resting spores formed  
     by the union of unlike sex-cells, e.g.,  
     of egg and sperm  
*opacus*, opaque  
*opalinus*, clear  
*operculatus*, operculate, with a lid  
*operculiformis*, lid-shaped  
*operculum*, i, n., a cover, lid  
*oppidum*, i, n., a town  
*oppletus*, filled  
*oppositus*, placed  
*orbicularis*, orbicular, round  
*orbiculatim*, circularly

*orbis*, is, m., a circle  
*ordo*, inis, m., order  
*organicus*, organic  
*organum*, i, n., an organ  
*oriens*, arising  
*orientalis*, eastern  
*orificium*, i, n., opening  
*originalis*, original  
*origo*, inis, f., origin  
*orior*, to arise  
*ornatus*, furnished  
*orthotropus*, straight  
*ortus*, arisen  
*os*, oris, n., mouth  
*oscillans*, oscillating  
*osculum*, i, n., mouth  
*ostendo*, to show  
*ostiolatus*, ostiolate, with a mouth  
*ostiolum*, i, n., ostiole, opening  
*ovalis*, oval  
*ovaricola*, growing in ovaries  
*ovatus*, egg-shaped  
*ovinus*, of or belonging to a sheep  
*ovoideus*, nearly egg-shaped

## P

*pachydermaticus*, thick-walled  
*pachypleurus*, thick-walled  
*paene*, nearly  
*paenultimus*, next to the last  
*pagina*, ae, f., page, side  
*paliformis*, paliform, stake-shaped,  
   palisade-like  
*pallescent*, turning pale  
*pallidus*, pale  
*palmatus*, palmate, hand-like, palm-  
   like  
*palmicola*, growing on palms  
*palpebra*, ae, f., eyelid  
*paludosus*, marshy  
*palumbinus*, dove-colored, grayish  
*palus*, udis, f., a marsh, swamp  
*panicula*, ae, f., a panicle  
*paniculatus*, paniculate, branched  
*panis*, is, m., bread  
*pannosus*, pannose, ragged  
*pannum*, i, n., a rag, cloth  
*papillaris*, papillate  
*papillatus*, with papilla, papillate  
*papilliformis*, like a papilla  
*papillula*, ae, f., a little papilla  
*papillulatus*, with a very small nipple  
   or papilla  
*papulosus*, with many pustules  
*papyraceus*, papery  
*paradoxus*, strange, contrary  
*parallelus*, parallel  
*parasiticus*, parasitic  
*parcus*, few, scanty  
*parenchymaticus*, parenchyma-like  
*paries*, etis, m., a wall  
*paritas*, atis, f., equality  
*paroecchia*, ae, f., parish  
*pars*, partis, f., a part  
*partitus*, divided  
*parum*, too little  
*parvulus*, small  
*parvus*, small  
*pascuum*, i, n., pasture  
*passim*, everywhere  
*patellaris*, dish-like  
*patelliformis*, shaped like a dish  
*patens*, spreading  
*patenter*, openly  
*patior*, to support, endure  
*patulus*, spreading  
*paucilocularis*, few-celled  
*paucus*, few  
*paulatim*, gradually  
*paulisper*, for a little while  
*paulo*, a little  
*pectinatus*, comb-like  
*peculiaris*, peculiar  
*pedatus*, foot-like  
*pedicellatus*, with a pedicel  
*pedicellus*, i, m., pedicel  
*pediculatus*, pedicelled  
*pedunculatus*, stalked  
*pedunclicola*, growing on peduncles  
*pellicle*, skin, covering  
*pellicula*, ae, f., a little skin  
*pelliculosus*, with a covering  
*pelluciditas*, atis, f., clearness  
*pellucidus*, pellucid, clear  
*peltatus*, shield-shaped  
*pendo*, to hang  
*pendulus*, hanging  
*penetrans*, penetrating  
*penicillate*, brush-like  
*penicilliformis*, brush-like

- pentagonus**, pentagonal  
**per**, through  
**peraffinis**, closely related  
**perbrevis**, very short  
**percursus**, run through  
**perdurans**, resting  
**perduro**, to last  
**perennans**, perennial  
**perennis**, perennial  
**perexiguus**, very thin  
**perexilis**, very slender  
**perfectus**, complete, perfect  
**perforans**, perforating  
**perforatus**, perforated  
**perfossus**, hollowed out  
**pericarpium**, ii, n., pericarp, covering  
**peridermicus**, belonging to the periderm  
**peridermium**, ii, n., periderm  
**peridium**, ii, n., peridium  
**periphericus**, peripheral around the edge  
**peristomium**, ii, n., mouth  
**perithecialis**, perithecial  
**perithecigerus**, perithecium-bearing  
**perithecioid**, perithecium-like  
**peritheciophorus**, bearing perithecia  
**peronatus**, rough, rough-booted  
**perparum**, very little  
**perrumpens**, breaking through  
**persicinus**, peach-colored  
**persistans**, persistent  
**perspicuus**, transparent  
**perspicuus**, clear  
**persuasus**, convinced  
**pertenuis**, very thin  
**pertineo**, to belong  
**pertusus**, protruded  
**pes**, **pedis**, m., foot  
**petiolum**, i, n., petiole  
**petrifactus**, made like rock, hardened  
**pezizoideus**, pezizoid, cup-fungus-like, cup-like  
**phacidioideus**, like *Phacidium*, black and disk-like  
**phaeophragmeus**, with dark transeptate spores  
**phaeosporus**, with dark, one-celled spores  
**phaseoliformis**, bean-shaped  
**phomatoideus**, *Phoma*-like  
**phyllogenus**, phyllogenous, borne on leaves  
**phyllostictioideus**, *Phyllosticta*-like  
**phytogenus**, growing on plants  
**phytographus**, i, m., a botanist  
**phytophilus**, phytophilous, growing on plants  
**pictura**, ae, f., a painting  
**pictus**, colored  
**pileatus**, cap-shaped  
**pileus**, i, m., a cap  
**pilosellus**, somewhat hairy  
**pilosus**, pilose, with hairs  
**pilum**, i, n., a hair  
**pineus**, piny  
**pingo**, to paint  
**pinna**, ae, f., a leaflet  
**pinnatus**, pinnate  
**piperatus**, peppery, pungent  
**piscis**, is, m., a fish  
**pisum**, i, n., pea  
**placenta**, ae, f., placenta  
**placentiformis**, placenta-like  
**plaga**, ae, f., a spot  
**plagula**, ae, f., a little spot  
**plaguliformis**, spot-like  
**planta**, ae, f., a plant  
**plantula**, ae, f., a little plant  
**planus**, plane, flat  
**plasma**, **atis**, n., plasm, mass  
**plasmodium**, ii, n., protoplasm-like mass  
**pleiosporus**, many-spored  
**plenus**, full  
**plerumque**, for the most part  
**pleuroacrogenus**, borne at the tip and at the sides  
**pleurogenus**, pleurogenous, borne on the walls or sides  
**plica**, ae, f., a fold  
**plicatus**, plicate, folded  
**pliciformis**, fold-form  
**plumbeus**, lead-colored  
**plures**, many  
**pluriarticulatus**, many-celled  
**pluriciliate**, with many cilia  
**plurifurcatus**, many forked  
**pluriguttulatus**, many guttulate  
**plurilocellatus**, with many hollows



- pluriperforate**, with several openings  
**pluristratosus**, many-layered  
**poculiformis**, cup-shaped  
**podetium**, *i*, *n.*, a stalk-like or cup-like erect thallus  
**polaris**, polar  
**politus**, polished  
**polleo**, to be able, avail  
**pollex**, *icis*, *m.*, thumb  
**pellicaris**, thumb-like, an inch long  
**polus**, *i*, *m.*, a pole  
**poly-**, many  
**polyascus**, with many asci  
**polyblastus**, many-celled  
**polycephalus**, polycephalous, with many heads  
**polyedricus**, polyhedral  
**polygonus**, with many angles  
**polyrrhizus**, with many roots  
**polystichus**, polystichous, in many rows  
**pondus**, *eris*, *n.*, weight  
**populus**, *i*, *f.*, poplar  
**porosus**, with pores  
**porrigo**, to stretch out  
**porus**, *i*, *m.*, a pore  
**positus**, placed  
**possum**, to be able  
**postea**, hereafter  
**postice**, at the back  
**postremus**, last  
**potius**, rather  
**praecedens**, preceding  
**praecipue**, especially  
**praeclarus**, distinguished  
**praecox**, early, abundant  
**praeditus**, furnished  
**praefendum**, preferred  
**praelongus**, very long  
**praeprimis**, especially  
**praesens**, present  
**praesertim**, particularly  
**praestans**, distinguishing, excelling  
**praesumptus**, assumed, presumed  
**praetereaue**, besides, moreover  
**praeteritus**, past  
**pratium**, *i*, *n.*, a meadow  
**primitivus**, primitive  
**primitus**, at first  
**primus**, first  
**prioritas**, *atis*, *f.*, priority  
**prismaticus**, prismatic  
**privus**, without, deprived  
**pro**, for  
**probabilis**, probable  
**procerus**, tall  
**processus**, projection  
**procumbens**, procumbent, prostrate  
**prodeuns**, projected  
**productus**, carried out, produced  
**proficiscor**, to begin, arise  
**profunditas**, *atis*, *f.*, depth  
**profundus**, deep  
**projectus**, thrown off  
**proles**, *is*, *f.*, a race, offspring  
**proliferus**, proliferous, produced, proliferate  
**proliger**, bearing offspring  
**prolongatio**, *onis*, *f.*, prolongation; lengthening  
**promycelium**, *i*, *n.*, promycelium  
**prope**, near  
**proper exciple**, an apothecial covering or wall without algae  
**propius**, proper  
**propinquus**, adjacent  
**propulsus**, expelled  
**proratione**, comparatively  
**prorsus**, forwards, exactly  
**prorumpo**, to break through  
**prosenchymaticus**, prosenchymatic, consisting of long cells or filaments  
**proteus**, changing, variable  
**protractus**, extended  
**protrudens**, projecting  
**provectus**, prolonged, advanced  
**proveniens**, coming  
**pruinulosus**, somewhat powdery  
**pruinosis**, powdery, pruinose  
**pseudo-**, false  
**pseudoparaphyses**, false paraphyses  
**pseudoparenchyma**, false parenchyma, a tissue looking like parenchyma but formed of threads  
**pseudoperidium**, a covering  
**pseudoplasmodium**, *ii*, *n.*, a false plasmodium  
**pseudopodium**, *ii*, *n.*, false foot, lobe  
**pseudostiolum**, *i*, *n.*, false ostiole

*pseudostroma*, *atis*, *n.*, a false stroma  
*pseudostromaticus*, resembling a stroma

*pseudothallus*, *i*, *m.*, false thallus

*puberulus*, somewhat hairy

*pubescens*, hairy

*pubes*, *is*, *f.*, hair

*puccinoideus*, puccinia-like

*pulchellus*, beautiful

*pulcher*, beautiful

*pulchre*, beautifully

*pulpa*, *ae*, *f.*, pulp, mass

*pulveraceus*, powdery

*pulverulentus*, powdery

*pulvinatus*, cushioned

*pulvinulus*, *i*, *m.*, a little cushion

*pulvis*, *eris*, *m.*, powder

*punctiformis*, punctiform, dot-like

*punctulans*, dotting

*punctulatus*, punctate, dotted

*purpurascens*, becoming purple

*purus*, pure

*pusillus*, tiny

*pusio*, *onis*, *m.*, a growth

*pustula*, *ae*, *f.*, a mass

*pustulate*, pertaining to a swollen mass

*putamen*, *inis*, *n.*, a shell

*putredo*, to decay

*putrescens*, decaying

*putris*, decaying

*pycnidicus*, pycnidial

*pyramidatus*, pyramidal

*pycnidium*, *i*, *n.*, pycnidium

*pyreniformis*, pyreniform, shaped like a nut

*pyriformis*, pear-shaped

*pyxidatus*, like a box

## Q

*quadricoccus*, of four round cells

*quadripartitus*, four-divided

*quadrisporus*, four-spored

*quadrum*, *i*, *n.*, a square

*qualis*, like

*quam*, than

*quandoque*, whenever, at some time

*quartus*, fourth

*quasi*, almost

*quater*, four times

*quaternus*, by fours

*quattuor*, four

*quercinus*, oaken

*quia*, because

*quinqueseptatus*, five septate

*quisque*, each

*quisquillae*, *arum*, *f.*, dirt, trash

*quoad*, as long as, as much as

*quod*, that

*quoque*, also

## R

*racemulus*, *i*, *m.*, a little raceme

*racemus*, *i*, *m.*, a bunch of grapes, raceme

*rachis*, *is*, *f.*, axis

*radians*, radiating

*radiatim*, radiately

*radiatus*, radiate

*radicalis*, basal

*radicans*, root-like, rooting

*radicatus*, radicate, more or less rooted

*radiciformis*, root-shaped

*radicosus*, having many roots

*radix*, *icis*, *f.*, a root

*ramicola*, ramicole, living on twigs

*ramosus*, much branched

*ramulus*, *i*, *m.*, a little branch

*ramus*, *i*, *m.*, a branch

*rarius*, more rarely

*raro*, rarely

*rasus*, leveled

*reabsorptus*, reabsorbed

*recedo*, to recede, differ

*recensio*, *onis*, *f.*, a reviewing

*recludens*, opening

*recognoscens*, recognizing

*rectangularis*, rectangular

*rectangulus*, rectangular

*rectus*, straight

*reddo*, to return, restore

*refractus*, turned back

*refringens*, refringent

*regio*, *onis*, *f.*, region

*relatus*, related

*relinquens*, leaving

*relinquo*, to leave

*reliquus*, left, remaining

*remote*, distantly

**remotiusculus**, somewhat distant  
**reniformis**, reniform, kidney-shaped  
**repandus**, turned back  
**repens**, creeping  
**reperio**, to find  
**repertorium**, ii, n., an inventory, catalogue  
**repertus**, found  
**repetite**, repeatedly  
**repetitus**, repeated  
**repletus**, full  
**repo**, to crawl  
**res**, rei, f., a thing  
**resolvens**, breaking up  
**resorptus**, absorbed  
**resupinatus**, resupinate, horizontal,  
the hymenium turned up  
**reticulatus**, reticulate, net-like  
**reticulum**, i, n., a net  
**retiformis**, net-like  
**retineo**, to retain, keep  
**retis**, is, f., a net  
**retrorsus**, backward  
**retusus**, with a little sinus  
**revelo**, to reveal, uncover  
**revivescens**, reviving  
**revoco**, to recall  
**revolutus**, folded back  
**rhabarbarinus**, yellow  
**rhizoid**, root  
**rhizoideus**, root-like  
**rhizomorphoideus**, root-like  
**rhizophilus**, growing on roots  
**rhodosporus**, with rose-colored spores  
**rhombius**, rhombic  
**rhomboideus**, rhomboid  
**rhytismoideus**, Rhytisma-like  
**ricciiformis**, like Riccia, a liverwort  
**rigens**, stiff, rigid  
**rigidulus**, somewhat stiff  
**rigidus**, stiff  
**rima**, ae, f., cleft  
**rimosus**, rimose, cleft, cracked,  
**ripa**, ae, f., bank  
**rite**, rightly, fitly, well  
**rivulosus**, with channels  
**rivus**, i, m., brook  
**robustus**, robust  
**roridus**, like dew  
**ros**, roris, m., dew

**roseolus**, somewhat rosy  
**roseus**, rose-colored  
**rostellatus**, somewhat beaked  
**rostratus**, rostrate, beaked  
**rostriformis**, beak-like  
**rostrum**, i, n., beak  
**resulatus**, rosette-like  
**rotundatus**, rounded  
**rubeolus**, somewhat reddish  
**ruber**, red  
**rubellus**, somewhat reddish  
**rubescens**, growing red  
**rubiginosus**, rust-colored  
**rubricosus**, reddish  
**rufescens**, becoming reddish  
**rufus**, reddish  
**rugosiusculus**, more or less wrinkled  
**rugulosus**, furrowed, roughened  
**rumpens**, breaking  
**ruptus**, broken  
**rursus**, backward  
**rutilus**, red

## S

**saccatus**, saccate, sac-like  
**saccharinus**, sugary  
**saccharum**, i, n., sugar  
**sacciformis**, sac-shaped  
**sacculiformis**, like a little sac  
**sacculus**, i, m., a little sac  
**saepe**, often  
**salicinus**, of willow  
**salmonicolor**, salmon colored  
**salmonius**, salmon-colored  
**saltem**, at least  
**samara**, ae, f., key fruit  
**samariform**, key-shaped  
**sanguineus**, bloody, blood-colored  
**sapidus**, filled with sap, savory  
**sapor**, oris, m., flavor  
**saprogenus**, saprogenous, growing on  
decayed matter  
**saprophilus**, growing on decaying  
matter  
**saprophyticus**, saprophytic  
**sarciniformis**, sarciniform, packet-  
like  
**sarmentum**, i, n., twig  
**satis**, sufficient  
**saturatus**, saturated

- scaber*, rough  
*scabridus*, rough  
*scabriusculus*, somewhat rough  
*scalaris*, of a ladder, or staircase  
*scaliformis*, ladder-like  
*scariosus*, thin, papery  
*scheda*, *ae, f.*, sheet of paper  
*scio*, to know  
*scissilis*, splitting  
*sclerotiformis*, sclerotium-like  
*sclerotioideus*, sclerotiid, sclerotium-like  
*sclerotium*, *i, n.*, sclerotium, a hard black mass  
*scolecosporus*, with thread shaped spores  
*scopulate*, like a brush  
*scrobiculatus*, roughened, furrowed  
*scrotiformis*, bladder-like  
*scruposus*, rough  
*scrutator*, *oris, m.*, an investigator  
*scutatus*, shield-shaped  
*scutellatus*, like a small shield  
*scutiformis*, shield-shaped  
*secedens*, separating  
*secernibilis*, separable  
*sectio, onis, f.*, a section  
*secundarius*, secondary  
*secundum*, according to  
*secus*, otherwise  
*sed*, but  
*sedulus*, diligent, careful  
*segmentiformis*, segment-like  
*sejunctus*, separate  
*semel*, once  
*semen, inis, n.*, a seed  
*semi*, half  
*semiexertus*, half extended  
*semiimmersus*, half immersed  
*semiinfossus*, (*cf. infossus*)  
*semiinsculptus*, (*cf. insculptus*)  
*seminalis*, seed-like  
*seminicola*, growing on seeds  
*semipellucidus*, half-pellucid  
*semiteres*, half columnar  
*semiuncialis*, a half inch  
*semper*, always  
*senescens*, growing old  
*sensim*, gradually  
*sensus, us, m.*, opinion, sense  
*separabilis*, separable, separating  
*separo*, to separate  
*sepimentum, i, n.*, partition  
*sepono*, to separate  
*septatus*, septate, divided into cells  
*septentrionalis*, northern  
*septulum, i, n.*, a little septum  
*sepulchrum, i, n.*, grave  
*sequens*, following  
*sericellus*, somewhat silky  
*sericeus*, silky  
*series, ei, f.*, a series  
*serotinus*, late  
*serpens*, creeping  
*serpentinus*, serpentine  
*serratus*, serrate  
*serus*, late  
*sesqui*, by a half  
*sesquilinea*, one inch and a-half  
*sesquipedian*, very long  
*sessilis*, seated, without a stalk  
*seta, ae, f.*, a bristle  
*setaceus*, bearing one or more bristles  
*setiformis*, bristle-shaped  
*setiger*, bristle-bearing  
*setosus*, setose, with bristles  
*setula, ae, f.*, a little bristle  
*setulose*, with bristles or spines  
*seu*, or  
*sexilocularis*, with six cells or locules  
*sexsporus*, six-spored  
*sexsulcatus*, six-furrowed  
*siccans*, drying  
*siccus*, dry  
*sigillatim*, seal-like  
*sigmoideus*, sigmoid, s-like  
*signatus*, marked  
*sileo*, to be silent  
*silva, ae, f.*, a forest  
*similaris*, like  
*similis*, similar  
*simple*, not branched; one-celled (of spores)  
*simplex, icis*, simple  
*simul*, at the same time  
*simulate*, apparently  
*simulo*, to imitate, copy, represent  
*sine*, without  
*singularis*, peculiar, not in chains  
*singulus*, each

- sinuatus**, sinuate  
**sinuosus**, crooked  
**sistens**, comprising  
**situs**, placed  
**socia, ae, f.**, society  
**sociatus**, grouped together  
**scleo**, to be accustomed  
**solidiusculus**, somewhat solid  
**solitarius**, solitary  
**soltus**, usual  
**sollertus**, distinguished  
**solubilis**, dissolving  
**solutus**, dissolved  
**sordes, is, f.**, dirt  
**sordidus**, dirty  
**sorus, i, m.**, spore mass  
**spadiceus**, brownish  
**spatha, ae, f.**, a spathe  
**spargo**, to scatter  
**sparsus**, scattered, sparse  
**spathulatus**, spathulate  
**spatium, i, n.**, space  
**specialis**, special  
**species, ei, f.**, species  
**spectans**, looking  
**specto**, to look  
**spermagonium, ii, n.**, a pycnidium-like body  
**spermatiferus**, spermatia-bearing  
**spermatiformis**, like a spermatium  
**spermatioideus**, spermatium-like  
**spermatium, ii, n.**, a conidium-like body  
**spero**, to hope  
**sphaericus**, spherical  
**sphaeroideus**, nearly spherical  
**sphaerula, ae, f.**, a sphere  
**spica, ae, f.**, a point, ear  
**spicatus**, spike-like  
**spiculosus**, spiny  
**spiculum, i, n.**, a little spine  
**spiniformis**, spiny  
**spinuligerus**, spine-bearing  
**spinulosus**, with little spines  
**spira, ae, f.**, a spiral  
**spiralis**, spiral  
**spiraliter**, spirally  
**spiritus, us, m.**, a spirit  
**piissus**, thick  
**splendens**, splendid  
**spongilliformis**, sponge-like  
**spongiosus**, spongy  
**sponte**, spontaneously  
**sporangiferus**, bearing sporangia  
**sporangiolerus**, bearing small sporangia  
**sporangiolum, i, n.**, a little sporangium  
**sporangiophore**, the stalk of a sporangium  
**spore-print**, the spore mass obtained by placing the cap of a mushroom flat on a piece of white paper  
**sporicus**, sporal  
**sporidolum, i, n.**, a little spore  
**sporidium, i, n.**, a spore  
**sporiferus**, spore-bearing  
**sporodochium**, a compact, conidial body, mass of sporophores  
**sporomorphus**, spore-shaped  
**sporophora, ae, f.**, sporophore  
**spurius**, false  
**squama, ae, f.**, a scale  
**squamosus**, scaly  
**squarrose**, with spreading scales or hairs  
**statura, ae, f.**, stature  
**status, us, m.**, stage  
**stellatus**, stellate, star-like  
**stelliformis**, star-shaped  
**stercoratus**, manured  
**stercus, oris, n.**, dung  
**sterigma, atis, n.**, stalk  
**stilbeus**, stilbum-like, mallet like  
**stilbiformis**, stalk-like  
**stilboid**, with a stalked-head, Stilbum-like  
**stipatus**, crowded  
**stipes, itis, m.**, a stalk  
**stipitatus**, stipitate, stalked  
**stipitellus, i, m.**, a little stalk  
**stipitiformis**, stalk-like  
**stoloniferous**, producing runners  
**stoloniformis**, runner-like  
**stramineus**, straw-colored  
**stratosus**, in layers  
**stratum, i, n.**, a layer  
**strenuus**, prompt, vigorous  
**stria, ae, f.**, a line

- strigosus**, strigose, long or coarsely hairy  
**striiformis**, line-like  
**strobilus**, i, m., a cone  
**stroma**, atis, n., a covering, layer  
**stromaticus**, stromatic  
**stromatiferus**, bearing a stroma  
**structura**, ae, f., a structure  
**stuposus**, tow-like  
**stylospora**, ae, f., a stylospore  
**suadens**, persuading  
**suavis**, pleasant  
**sub**, affix meaning somewhat, slightly  
**subacutus**, somewhat acute  
**subaequans**, nearly equal  
**subalbus**, nearly white  
**subalutaceus**, somewhat yellow  
**subastomous**, more or less mouthless  
**subbulbosus**, somewhat bulbous  
**subcarbonaceus**, slightly carbonaceous  
**subcarnulosus**, slightly fleshy  
**subclavatus**, subclavate  
**subclypeate**, somewhat shield-shaped  
**subcolumelliformis**, somewhat like a columella  
**subconoideus**, slightly conical  
**subcrustose**, somewhat crust-like  
**subcuboideus**, somewhat cubical  
**subcutaneus**, under the epidermis  
**subdeterminatus**, limited  
**subdiscoideus**, somewhat disc-shaped  
**subelevatus**, somewhat raised  
**suberosus**, suberose, corky  
**subfuscus**, subfuscous, somewhat dark  
**subglobosus**, subglobose  
**subiculum**, i, n., subicle, a compact cottony mycelium  
**subimmersus**, slightly immersed  
**subinde**, presently, forthwith, now and then  
**subito**, suddenly  
**subnullus**, nearly lacking  
**substantia**, ae, f., substance  
**subterraneus**, subterranean  
**subtilis**, thin, slender  
**subtilitas**, atis, f., fineness, thinness  
**subulatus**, subulate, awl-shaped  
**subuliformis**, awl-shaped  
**subvitro**, under the lens  
**succresco**, to grow under  
**suffultus**, supported  
**sulcatus**, sulcate, furrowed  
**sulcula**, ae, f., a little furrow  
**sulcus**, i, m., a furrow  
**sulphurellus**, sulphurish  
**sulphureus**, sulphur-colored  
**summa**, ae, f., highest point, sum  
**superans**, exceeding  
**superficialis**, superficial  
**superficies**, ei, f., the surface  
**superimpositus**, superimposed  
**superpositus**, superposed  
**superus**, upper  
**supremus**, uppermost  
**surculus**, i, m., a shoot  
**sursum**, upward  
**suspensor**, supporting cell or group of cells  
**sustinens**, supporting  
**sylva**, ae, f., a forest (see *silva*)  
**sympodice**, sympodially  
**synnema**, atis, n., an erect fascicle of hyphae, as in *Stilbaceae*

## T

- tabesco**, to melt  
**tactus**, touched  
**taeniola**, ae, f., a little band  
**talis**, such  
**tamen**, however, yet  
**tandem**, at length  
**tantillus**, so little  
**tapetum**, i, n., nourishing layer  
**tarde**, slowly, late  
**tartareus**, powdery  
**tectus**, covered  
**tegens**, covering  
**tegmen**, inis, n., a cover  
**teleutospora**, ae, f., a teleutospore  
**teleutospoeriferus**, bearing teleutospores  
**tenacellum**, somewhat tenaceous  
**tenellus**, delicate  
**tentacula**, ae, f., a tentacle  
**tentaculiformis**, tentacle-shaped  
**tenuatim**, drawn out  
**tenuis**, slender  
**ter**, three times  
**terete**, cylindrical

- teretiusculus*, round, cylindric  
*terminalis*, terminal  
*terminatus*, terminated  
*ternate*, in threes  
*ternus*, three-fold  
*terra*, ae, f., soil, earth  
*terrestris*, terrestrial  
*tertius*, third  
*testa*, ae, f., a shell, coat  
*testaceus*, brick-colored  
*tetradidymus*, four-fold  
*tetragonus*, four-angled  
*tetrasporus*, four-spored  
*thalamium*, i, n., a room  
*thallicola*, growing on a thallus  
*thalliformis*, thallus-like  
*thalline exciple*, applied to an exciple containing algae  
*thallus*, a more or less definite mass of hyphae parasitic on algae  
*thelephoroideus*, thelephora-like  
*tigrinus*, like a tiger  
*tinctus*, tinged  
*tingens*, tinged  
*tomentellus*, hairy  
*tomentosus*, hairy  
*tornatus*, rounded-off  
*toruloideus*, chain-like  
*torulosus*, torulose, necklace-like  
*tortuosus*, flexuous  
*tortus*, twisted  
*totaliter*, totally  
*totus*, all  
*trabs*, is, f., a beam  
*tractus*, us, m., a tract  
*trahendum*, to be drawn  
*trama*, ae, f., a pathway  
*transpetate*, with all cross-walls transverse  
*translucidus*, clear  
*trapezoideus*, trapezium-like  
*transiens*, temporary  
*transversalis*, transversal  
*tremelloideus*, tremelloid, gelatinous  
*tremellosus*, jelly-like  
*triangularis*, triangular  
*tribus*, us, f., a tribe  
*tricornutus*, with three horns  
*trifoveolatus*, with three hollows  
*trigonus*, trigonous, three-angled  
*trilobus*, three-lobed  
*trinacriiformis*, three-pronged  
*tripartitus*, three-divided  
*tripedalis*, three feet long  
*tripollicaris*, three inches  
*triquetrus*, three-cornered  
*trisporus*, three-spored  
*tristichus*, in three rows  
*tropicus*, tropical  
*truncatus*, cut-off  
*truncicola*, growing on trunks  
*trunculus*, i, m., a little trunk, stem  
*truncus*, i, m., a trunk  
*tuber*, eris, n., tuber, a swelling  
*tubercularinus*, Tubercularia-like  
*tubercularioid*, Tubercularia-like, warted  
*tubercularoideus*, Tubercularia-like  
*tuberculiformis*, wart-like  
*tuberculosus*, roughened  
*tuberiform*, tuber-like  
*tuberiformis*, tuberiform, tuber-shaped  
*tubulosus*, tubular  
*tubulus*, i, m., a tube  
*tumescens*, swelling  
*tumidulus*, somewhat swollen  
*tumifactus*, swollen  
*tunc*, then  
*tunica*, ae, f., cloak, coating  
*tunicatus*, tunicate, covered  
*turbinatus*, turbinate, top-shaped  
*turgescens*, swollen  
*turgidus*, swollen  
*turriiformis*, shaped like a tower  
*turritus*, turreted, tower-like  
*typice*, usually, characteristically  
*typus*, i, m., a type

## U

- uber*, rich  
*ubi*, where  
*ubiquemque*, everywhere  
*udus*, wet  
*uliginosus*, rich, muddy  
*ullus*, any  
*ultimus*, last  
*ultra*, beyond or more  
*-ulus*, a, um, suffix, meaning small  
*umbellatus*, umbellate, umbelled  
*umbelliformis*, like an umbel

**umbilicatus**, umbilicate, with a navel, sunken in the center, somewhat funnel-form.

**umbilicus**, i, m., navel

**umbonatus**, umbonate, with a boss

**umbra**, ae, f., shade

**umbrinus**, brown

**umbrosus**, shady

**uncia**, ae, f., an inch

**uncialis**, an inch long

**uncinatus**, hooked

**unde**, whence

**undique**, in all directions

**undulatus**, wavy

**uniarticulatus**, one-jointed

**unicus**, single

**uniformis**, of one form

**unilateralis**, one-sided

**unilocular**, with a single cavity or cell

**uniserialis**, one-rowed

**uniseriatus**, one-rowed

**unitus**, joined

**unquam**, ever

**urceolatus**, pitcher-shaped

**uredinicola**, growing on rusts

**uredospora**, uredospore

**uredosporiferus**, bearing uredospores

**urniformis**, urn-shaped

**uromorphus**, tail-like

**usque**, up to

**usurpatus**, usurped

**ut**, as

**uterque**, both

**ut-plurimum**, for the most part

**utriculiformis**, bladder-shaped

**utrimque**, on both sides, in both directions

**uvidus**, moist, wet

## V

**vaccinus**, pertaining to a cow

**vacuus**, empty

**vage**, vaguely

**vagina**, ae, f., a sheath

**vaginatus**, sheathed

**vagus**, vague

**valde**, strongly

**validiusculus**, more or less stout

**valseus**, valseous, valsoïd, Valsa-like, with the perithecia in a circle in the stroma

**valva**, ae, f., a valve

**valvatim**, valvate, with valves

**variabilis**, variable

**varie**, variously

**variegatus**, of different colors

**varius**, different

**-ve**, or

**vegetus**, fresh, vegetating

**vehementer**, strongly

**vel**, or

**velatus**, veiled

**vellus**, eris, n., fleece, wool

**velo**, to cover

**velocitas**, atis, f., swiftness

**velum**, i, n., a veil

**veluti**, as

**velutinus**, velvety

**vena**, ae, f., a vein

**venenatus**, poisonous

**veniformis**, vein-like

**ventricosus**, swollen

**vere**, truly

**vergo**, to approach

**verisimiliter**, apparently

**vermicularis**, worm-like

**vermiformis**, vermiform, worm-shaped

**vernalis**, vernal, of or belonging to spring

**vero**, truly

**verruciformis**, wart-like

**verruculosus**, verrucose, warted

**versatus**, poured

**versicolor**, of different colors

**versiformis**, of different forms

**versus**, towards

**vertens**, turning

**vertex**, icis, m., the tip

**verticalis**, vertical

**verticillatim**, in whorls

**verticillatus**, verticillate, whorled

**vescus**, small, weak

**vesicula**, ae, f., vesicle, swollen cell

**vesiculosus**, vesiculose, swollen, bladder

**vestiens**, covering

**vestigium**, i, n., remnant, vestige

**vestio**, to cover



**vestitus**, furnished, covered  
**vetustus**, old  
**vibrans**, changing  
**videor**, to seem  
**vigens**, growing  
**villosulus**, somewhat woolly  
**villus**, *i, m.*, a hairy covering  
**vinarius**, of wine  
**vineus**, of or belonging to wine  
**vinum**, *i, n.*, wine  
**violaceus**, violet  
**violascens**, turning violet  
**virens**, becoming green  
**virgatus**, rod-shaped  
**viridarium**, *i, n.*, greenhouse  
**virgultum**, *i, n.*, bush, copse  
**viridifuscus**, greenish brown  
**viridulus**, greenish  
**viscidulus**, viscid, somewhat sticky  
**visibilis**, visible  
**visus**, seen  
**vitellinus**, yellow  
**vitreus**, glassy  
**vivens**, living  
**vividus**, vivid  
**vivus**, alive  
**vix**, hardly

**volva**, *ae, f.*, a cup-like sheath at the base of a stem  
**volvaceus**, with a volva  
**volvatus**, with a volva  
**vulgatus**, common  
**vulgo**, commonly  
**vulpinus**, of a fox

**X**

**xylogenus**, xylogenous, growing on wood  
**xylophilus**, growing on wood

**Z**

**zona**, *ae, f.*, a zone  
**zonula**, *ae, f.*, a little zone  
**zoogenus**, on animals  
**zoogonid**, a motile propagative cell  
**zoospora**, *ae, f.*, zoospore  
**zoosporangium**, *ii, n.*, zoosporangium  
**zoosporiferus**, producing zoospores  
**zygosporiacus**, pertaining to a zygo-spore  
**zygosporous**, with resting spores formed by the conjugation of similar sex cells  
**zymogenus**, ferment-producing



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